

# THE COCCINELLIDAE OF THE THIRD MOUNT EVEREST EXPEDITION, 1924 (COLEOPTERA)

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## SYNOPSIS

The Coccinellidae of the Third Mount Everest Expedition, 1924, were collected from Sikkim and Darjeeling as well as from the higher and less explored parts of the Himalaya in Tibet. The collection includes fifty-one species, of which four have already been described as new by the writer, and sixteen more are described here for the first time. The collection comprises a mixture of palaeartic, oriental and endemic species, of which the endemic element represents about two-thirds of the total. The genera, however, are, with one exception, either palaeartic or oriental.

## INTRODUCTION

THE Coleoptera of the British Mount Everest Expedition, 1921, were studied by Blair (1922) who reported, in all, 21 specimens belonging to eight species of seven different families. No Coccinellid was recorded from this collection. The Coleoptera of the Second Mount Everest Expedition, 1922, contained five species of Carabidae (*vide* Andrewes, 1923) and seven of Heteromera (*vide* Blair, 1923) and so far as I am aware, no Coccinellid was reported from this expedition either. The Coleoptera collected by the Third Mount Everest Expedition, 1924, were, however, remarkable for their numbers and variety. The Carabidae, reported upon by Andrewes (1930), alone constituted 105 species and varieties of which 54 species were new to science. The Heteromera, dealt with by Blair (1927), contained some 30 species of which nine were new.

The present account of the Coccinellidae of the Third Mount Everest Expedition, 1924, is based on the rich collections made by Major R. W. G. Hingston, the Surgeon Naturalist with the Expedition. The material deposited in the British Museum (Natural History), London, is in an excellent state of preservation. It comes from both the lower and better known parts of the Himalaya such as Darjeeling and Sikkim and from the high and less explored parts such as Tibet. The material actually before me contains 45 species of which 16 are new to science. Six other species of the genus *Cryptogonus* Mulsant (Tribe Aspidimerini) four of them new, were dealt with by me earlier (Kapur, 1948). The collection of Coccinellidae of the Third Mount Everest Expedition, therefore, contains 51 species of which 20 are new.

It is to be noted that the species occurring at higher altitudes (say 9,000 feet and above, mainly in Tibet) are either endemic or palaeartic and that in almost all

cases the genera are palaeartic. On the other hand the species from lower altitudes (2,500–8,500 feet, mainly in Sikkim) are a mixture of endemic and oriental forms. In both the endemic element is large (36 species out of a total of 51).

My sincere thanks are due to the Keeper, Department of Entomology, British Museum (N.H.), London, and to Dr. E. B. Britton of the same department, for the loan of the material and for their co-operation. I am also grateful to Dr. M. L. Roonwal, Director, Zoological Survey of India, Calcutta, for giving facilities to complete this work.

#### SYSTEMATIC ACCOUNT

Table of Coccinellidae collected by the Third Mount Everest Expedition, 1924.

Name of species	Darjee- ling dist.	Sikkim	Tibet	Altitude in feet	Remarks
Subfamily I—EPILACHNINAE					
1. <i>Epilachna dodecastigma</i> (Wiedemann)		×		4,000	Oriental
2. <i>Epilachna indica</i> Mulsant		×		4,000	Oriental
3. <i>Epilachna sikkimica</i> , sp. n.		×		2,500	
4. <i>Afissa bengalica</i> Dieke		×		4,000	
5. <i>Afissa congener</i> (Gorham)		×		4,000	
6. <i>Afissa gibbera</i> (Crotch)		×		8,000	
7. <i>Afissa hingstoni</i> , sp. n.			×	10,000	
8. <i>Afissula sanscrita</i> (Crotch)		×	×	3,500; 10,000	
9. <i>Afidentula himalayana</i> sp. n.	×	×		7,000– 8,000	
Subfamily II—COCCINELLINAE					
Tribe 1—COCCIDULINI					
10. <i>Singhikalia ornata</i> , gen. et sp. n.		×		3,500 ; 5,000	
Tribe 2—NOVIINI					
11. <i>Rodolia guerini</i> (Crotch)		×		3,500	Oriental
Tribe 3—SCYMNINI					
12. <i>Pullus bourdilloni</i> Kapur		×		3,500	
13. <i>Pullus testaceocollis</i> , sp. n.		×		6,000	
14. <i>Pullus hingstoni</i> , sp. n.		×		5,000 ; 6,000	
15. <i>Pullus</i> , sp.		×		8,500	
Tribe 4—ASPIDIMERINI					
16. <i>Cryptogonus postmedialis</i> Kapur		×		3,500– 5,000	
17. <i>Cryptogonus quadriguttatus</i> Weise	×			4,000	
18. <i>Cryptogonus ariasi</i> (Mulsant)		×		5,000	
19. <i>Cryptogonus hingstoni</i> Kapur		×		5,000	
20. <i>Cryptogonus himalayensis</i> Kapur		×		3,500	
21. <i>Cryptogonus complexus</i> Kapur		×		5,000	

Name of species	Darjee- ling dist.	Sikkim	Tibet	Altitude in feet	Remarks
Tribe 5—CHILOCORINI					
22. <i>Chilocorus hauseri</i> Weise		×		5,000	
23. <i>Chilocorus braeti</i> Weise	×	×		5,000; 7,000	
Tribe 6—SYNONYCHINI					
24. <i>Leis dimidiata</i> (Fabr.)		×		4,000	Palaeartic
25. <i>Aiolocaria hexaspilota</i> (Hope)		×		3,500— 4,000	
26. <i>Aiolocaria dodecaspilota</i> (Hope)		×		3,500	
27. <i>Ballia gustavi</i> Mulsant		×		3,500	
28. <i>Oenopia luteopustulata</i> Mulsant		×		3,500; 5,000	
29. <i>Oenopia kirbyi</i> Mulsant	×			4,000	
30. <i>Oenopia sauzeti</i> Mulsant		×		4,000; 5,000	
31. <i>Oenopia quadripunctata</i> sp. n.	×			4,000	
32. <i>Coelophora sexareata</i> Mulsant	×	×		4,000; 5,000	
33. <i>Coelophora nitidicollis</i> sp. n.		×		7,000	
Tribe 7—HIPPODAMIINI					
34. <i>Hippodamia heydeni</i> (Weise)			×	14,500	Palaeartic
35. <i>Adonia variegata</i> (Goeze)			×	14,000— 15,000	Palaeartic
Tribe 8—COCCINELLINI					
36. <i>Adalia tetraspilota</i> (Hope)		×		3,000	Palaeartic
37. <i>Lioadalia luteopicta</i> (Mulsant)			×	11,000— 13,000	Palaeartic
38. <i>Synharmonia billieti</i> (Mulsant)			×	9,500	
39. <i>Synharmonia signatella</i> (Mulsant)	×	×		7,000; 11,000	
40. <i>Coccinella magnopunctata</i> Rybakow			×	14,000; 14,500	
41. <i>Coccinella tibetina</i> , sp. n.			×	14,000	
42. <i>Coccinella lama</i> , sp. n.			×	14,500— 15,000	
43. <i>Coccinella nigrovittata</i> , sp. n.			×	14,500	
44. <i>Calvia sykesi</i> (Crotch)	×			7,000	
45. <i>Calvia shiva</i> , sp. n.		×		5,000	
46. <i>Calvia durgae</i> , sp. n.		×		5,000	
47. <i>Calvia trilochana</i> , sp. n.		×		5,000	
48. <i>Calvia pinaki</i> , sp. n.		×		5,000	
49. <i>Calvia pasupati</i> , sp. n.		×		5,000	
Tribe 9—PSYLLOBORINI					
50. <i>Halyzia straminea</i> (Hope)		×		5,000	
51. <i>Halyzia sanscrita</i> Mulsant		×	×	5,000; 10,000	Palaeartic

## Subfamily EPILACHNINAE

*Epilachna dodecastigma* (Wiedemann)

*Coccinella dodecastigma* Wiedemann, 1823 : 73-74. [Type loc., Bengal].

*Epilachna dodecastigma* Mulsant, 1850 : 789. [Misspelling].

*Epilachna dodecastigma* (Wiedemann) Mulsant, 1853 : 248.

*Epilachna dodecastigma* Mulsant ; Korschefsky, 1931 : 28.

*Epilachna dodecastigma* (Wiedemann) ; Dieke, 1947 : 31.

Material. 1 ♀, SIKKIM, Pedong, 4,000 ft., 29.vii.1924 (R. W. G. Hingston).

This example possesses all the seven black spots on the pronotum and the same number on each elytron, the seventh spot being the smallest and subapical. The spots in this species exhibit considerable variation in number and size ; the maximum number of spots in the pronotum is seven and on the two elytra 28. This species is thus easily confused with other species of the genus that possess the same number of elytral spots. For correct recognition of the species, therefore, characters other

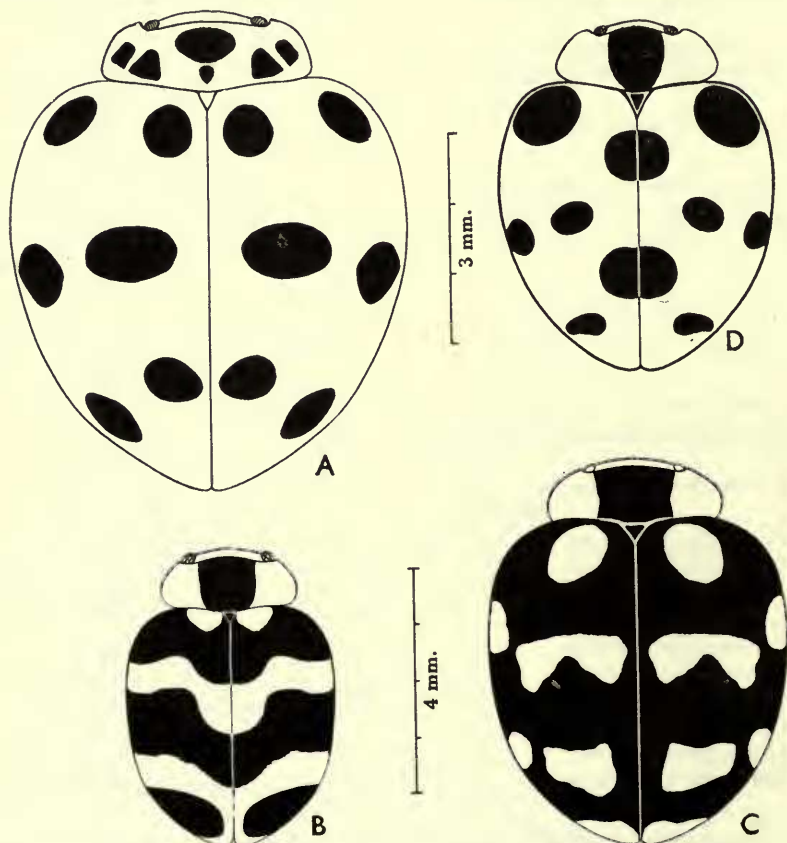


FIG. 1. Outlines showing the patterns : A, *Epilachna indica* Mulsant. B, *Afissa hingstoni*, sp. n. C, *Afissa gibbera* (Crotch). D, *Afissa bengalica* Dieke. (4 mm. scale for figs. A, B, C. 3 mm. scale for fig. D.)



than coloration have to be relied upon and in the case of the present group of species of *Epilachna* the structure of the male and the female genitalia is particularly useful. The type locality of *E. dodecastigma* is Bengal. The species is common in Calcutta where the number of elytral spots is generally 12-14; in the northern hilly districts of the State the number of spots is generally more, and often 26-28, on the two elytra. The genitalia and most external characters of the specimen under report agree with the material of the species from Bengal. The species is widely distributed in other countries such as Burma and Indonesia.

***Epilachna indica* Mulsant**  
(Text-fig. 1A)

*Epilachna indica* Mulsant, 1850 : 776-777 [Type loc., India].

*Epilachna indica* Mulsant ; Kapur, 1961 : 133-140.

Material. 1 ♀, SIKKIM, Gantok, 4,000 ft., 27.vii.1924 (R. W. G. Hingston).

The above example is easily recognised as belonging to *E. indica* by the transverse shape of the black discal spot on the elytra and by the outline of the female genital plate which is devoid of a deep notch. The species is widely distributed, having been recorded from several places in north-eastern India, Burma, China, Malaya and Java (*vide* Kapur, 1961).

***Epilachna sikkimica* sp. n.**  
(Text-figs. 2A-D)

♀. Body almost similar in appearance to *Epilachna indica* Mulsant but distinctly more obovate (Text-fig. 2, A), with the apical one-third of the lateral margins of elytra broadened; maximum convexity in the middle of the body. Head reddish-testaceous, eyes grey; pronotum also reddish-testaceous, with four black to piceous spots, the anterior lateral pair black, oval, fairly large and extending along the entire lateral margin of the pronotum, the posterior pair also black, smaller, roundish and lying close to the basal margin, the discal spot piceous, ill-defined but on the whole elongate and extending from near the anterior margin to the centre of the basal margin. Scutellum black. Elytra with 12 black spots, arranged as 2, 2, 2 on each elytron, and a number of piceous, ill-defined spots in the interspaces, and with none of these touching any of the black spots which may be described as follows: the scutellar spot broadly oval, fairly close to the sutural margin, and commencing from a little distance below the level of the apex of scutellum to about one-fifth of the length of elytron. The shoulder spot larger than the preceding, roundish, close to but not touching the basal and the lateral margins. The discal spot situated at about two-fifths of the length of elytron, roundish but slightly smaller than the preceding spot, equidistant from the sutural margin and the inner margin of the median lateral spot which is also roundish, and sub-equal in size to the discal spot; the median lateral spot situated at a slightly lower level than the latter and though close, it does not touch the lateral margin. The post-median sutural spot roundish and smallest, at level with the anterior sutural spot. The sixth or the subapical spot situated at about four-fifths of the length, largest, transversely oval, and closer to the lateral than the sutural margin. The piceous spots or areas on the elytra referred to above, as shown by dotted areas in Text-fig. 2, A. Underside with the thoracic sternites, the median parts of abdominal sternites, the greater part of femora (excepting knees) of all the three pairs of legs, piceous; the elytral epipleura somewhat dark, especially at the narrow external margin which appears almost piceous; the rest of the underside testaceous. Pubescence greyish throughout on the testaceous surface and the black and piceous areas or spots except on the black elytral spots where it is cinereous.

*Head* with fine, fairly close, and impressed punctation ; pubescence rather small and fairly close. *Pronotum* transverse, twice as broad as long in the middle, broadly emarginate in the middle anteriorly, the lateral margin moderately rounded ; the anterior and posterior angles rounded ; punctation fine, close and impressed, a little more so than that on the head ; pubescence small, fairly close, subdepressed. *Scutellum* triangular, with the base slightly shorter than the sides ; punctation very fine and rather shallow. *Elytra* distinctly convex, with the anterior angles broadly rounded and the humeral callus visible, the lateral margins narrowly bordered in the basal two-thirds of their length, gradually broadened and rather flat in the apical one-third, the apical angle pointed, rather acute, and slightly upcurved ; punctation double as in the genus, smaller punctures very fine and fairly close and the larger punctures sparse, relatively coarse and shallow ; pubescence as on the pronotum. Female with the last visible abdominal

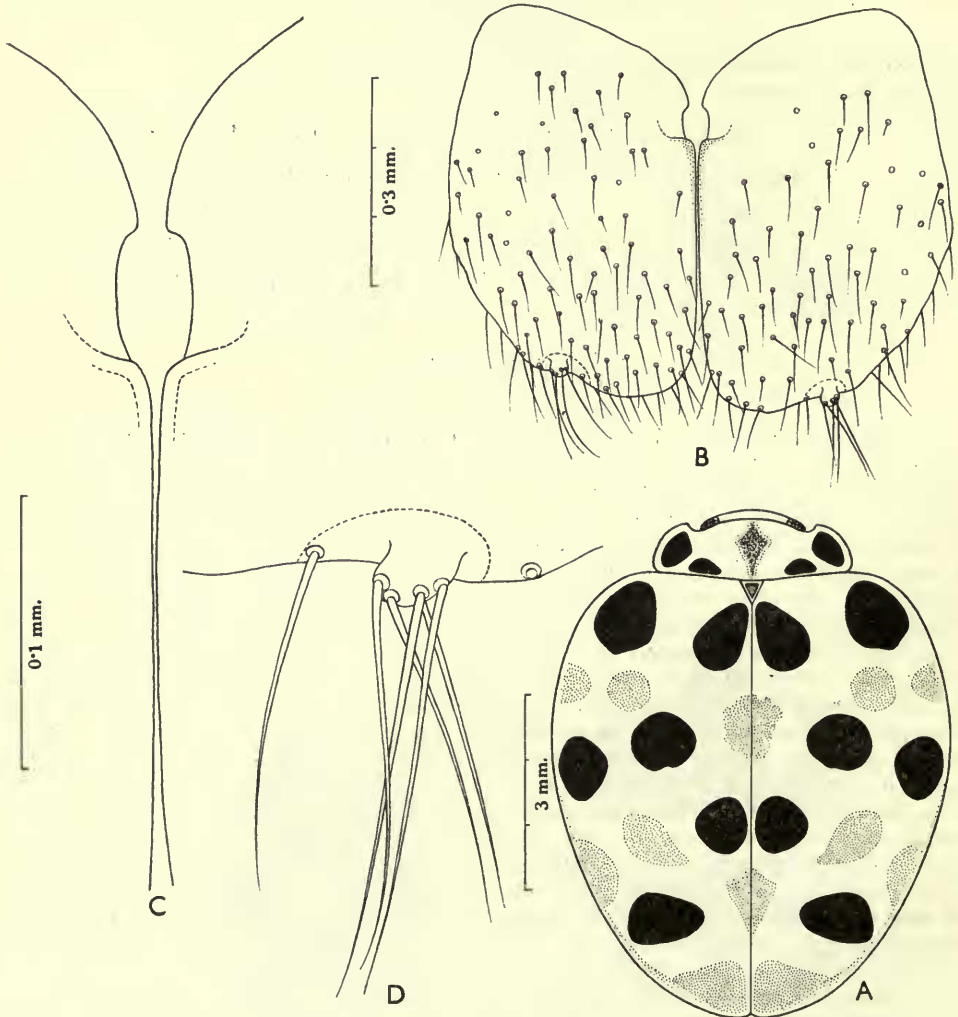


FIG. 2. *Epilachna sikkimica*, sp. n. A, outline showing the pattern. B, female genital plates. C, emargination of genital plates (much enlarged, 0.1 mm. scale). D, stylus of the genital plate (much enlarged, same scale as C).

sternite longitudinally split in the middle, the female genital plates (ix sternite) subquadrate in the basal half and subrounded externally in the distal half (Text-fig. 2, B), straight along the inner margin, with a shallow subquadrate notch near the proximal inner angle, and a small knob-like stylus in the middle of the distal margin; when magnified, the outline of the notch appears as in Text-fig. 2C and that of the stylus as in Text-fig. 2D.

♂. Unknown.

Length 7.3 mm.; breadth 6.0 mm.

Holotype. ♀, SIKKIM, Dikchu, 2,500 ft., 23.iv.1924 (R. W. G. Hingston), in the British Museum (N.H.), London. (Genitalia mounted between two coverslips and attached to specimen.)

This species resembles *E. indica* and *dodecastigma* in general shape, except that it is less orbicular than either of these and has an expanded and rather flattened external margin in the distal one-third of the elytra; besides, the shoulder-callus in *sikkimica* is quite distinct and the apical angles of the elytra are acute, whereas in the two above-mentioned species these angles are rounded. The outlines of the female genital plates in the three species are distinct; in *indica* the inner margin near the base is broadly emarginate but the notch as such is absent; in *dodecastigma*, on the other hand, the notch is well-developed and almost circular in each plate; in *sikkimica* the notch is subquadrate, as already described.

***Afissa bengalica* Dieke**  
(Text-fig. 1D)

*Afissa bengalica* Dieke, 1947 : 130-131, figs. 85, 154 [Type loc., Kurseong, India].

Material. 1 ♂, SIKKIM, Gantok, 4,000 ft., 6.v.1924 (R. W. G. Hingston).

Although described by Dieke from a single ♂ specimen, there is a number of examples of this species in the collection of the Zoological Survey of India, Calcutta (henceforward referred to as "Z.S.I. Collection"), which indicate that it is fairly variable in coloration. The colour-pattern of the example in the collection under report is shown in Text-fig. 1, D. The black, median longitudinal, pronotal spot, extending from the anterior margin to the scutellum, the black scutellum, and the deep and prominent elytral punctures are fairly reliable but the final identification is best done with the help of the male genitalia as described by Dieke (1947 : 131).

***Afissa congener* (Gorham), comb. nov.**

*Epilachna congener* Gorham, 1894 : 693 [Type loc., Burma].

*Epilachna (Solanophila) congener* Gorham; Korschefsky, 1931 : 28.

Material. 1 ♂, SIKKIM, Pedong, 4,000 ft., 27.vii.1924 (R. W. G. Hingston).

This species is characterised by the rather orbicular body, a roundish median pronotal spot, ferruginous scutellum and less coarse elytral punctures. In the Z.S.I. collection it is represented from several parts of north-eastern India, in one case by a long series from Darjeeling district, West Bengal. The tarsal claws in this species being without the basal tooth and the last visible abdominal sternite in the female being entire, it should be placed in the genus *Afissa* Dieke, 1947.

*Afissa gibbera* (Crotch), **comb. nov.**  
(Text-fig. 1C)

*Epilachna gibbera* Crotch, 1874 : 80 [Type loc., India].

*Epilachna (Solanophila) gibbera* Crotch ; Korschefsky, 1931 : 29.

Material. 1 ♀, SIKKIM, Lachen, 8,000 ft., 25.iv.1924 (*R. W. G. Hingston*).

This species is remarkable for its colour-pattern (Text-fig. 1, C) and convexity and is apparently rare in the collections. The colour-pattern is fairly constant but both the pronotal and elytral spots may be testaceous instead of reddish-testaceous as in the type in Crotch's collection. Like the preceding species, it also belongs to the genus *Afissa* Dieke.

*Afissa hingstoni* sp. n.  
(Text-fig. 1B)

♀. Body shortly oval (Text-fig. 1, B) and convex. Head reddish-testaceous, excepting the rather dark brown apices of mandibles and greyish eyes. Pronotum reddish-testaceous excepting the median one-third which is black from the base to the apex. Scutellum black. Elytra reddish-testaceous except the three black bands which are roughly basal, median and subapical in position. The basal band extends from shoulder to shoulder except for the two reddish-testaceous sub-triangular spots situated on either side of the scutellum and extending to about the middle of the base of the elytron ; the median one-fourth portion of this band extends as far as one-fourth the length of the suture. The median band extends from one lateral margin of the elytra to the other, is slightly broader than the basal band, and is wavy, being more deeply curved in the median one-fourth of its width. The subapical band is incomplete in the middle, i.e., though it commences from the external margin, it stops short at a little distance before the sutural margin on each elytron. Underside with the prothoracic and elytral epipleura testaceous, the legs reddish-testaceous, and the thoracic and abdominal sternites piceous to black.

*Head* with rather fine, impressed and sparse punctures and yellowish pubescence ; antennae slightly longer than the width of the head and with the distal three segments forming a serrate club ; eyes moderately granulated. *Pronotum* a little arched and slightly more than twice as broad as long ; widely emarginate anteriorly and moderately rounded anterolaterally ; with the anterior and posterior angles rounded ; the punctation rather fine and impressed like that of the head but less sparse ; pubescence directed anterolaterally. *Scutellum* moderate in size, like an equilateral triangle in outline, and with a few very fine and shallow punctures, and short pubescence. *Elytra* with moderately visible humeral calli, shoulder angles rounded and with very narrowly curved external margin, commencing from near the middle of the base of elytron and ending near the apices which are rounded ; punctation of the mixed type, there being fine, moderately impressed, and close punctures interspersed with coarse, impressed and sparse punctures ; pubescence short, sub-depressed, yellowish on the reddish-testaceous areas, and greyish on the black bands. *Underside* with the epipleura moderately narrow and without any sign of foveae for the reception of the femorotibial joints : prosternum with fine, sparse and impressed punctures, the mesosternum with coarse and close punctures, the metasternum with rather coarse and transversely directed punctures in places : the abdominal lines almost semicircular and extending to about two-thirds the length of the first abdominal segment. *Legs* with the tibiae rather narrow, the claws bifid, the inner denticle being slightly shorter than the outer one. Female with the last visible abdominal sternite entire, the genital plates (ix sternite) elongate and triangular in outline, with a pencil of setae on the small papilla at the apex of each.

♂. Unknown.

Length 4.7 mm. ; breadth 3.7 mm.



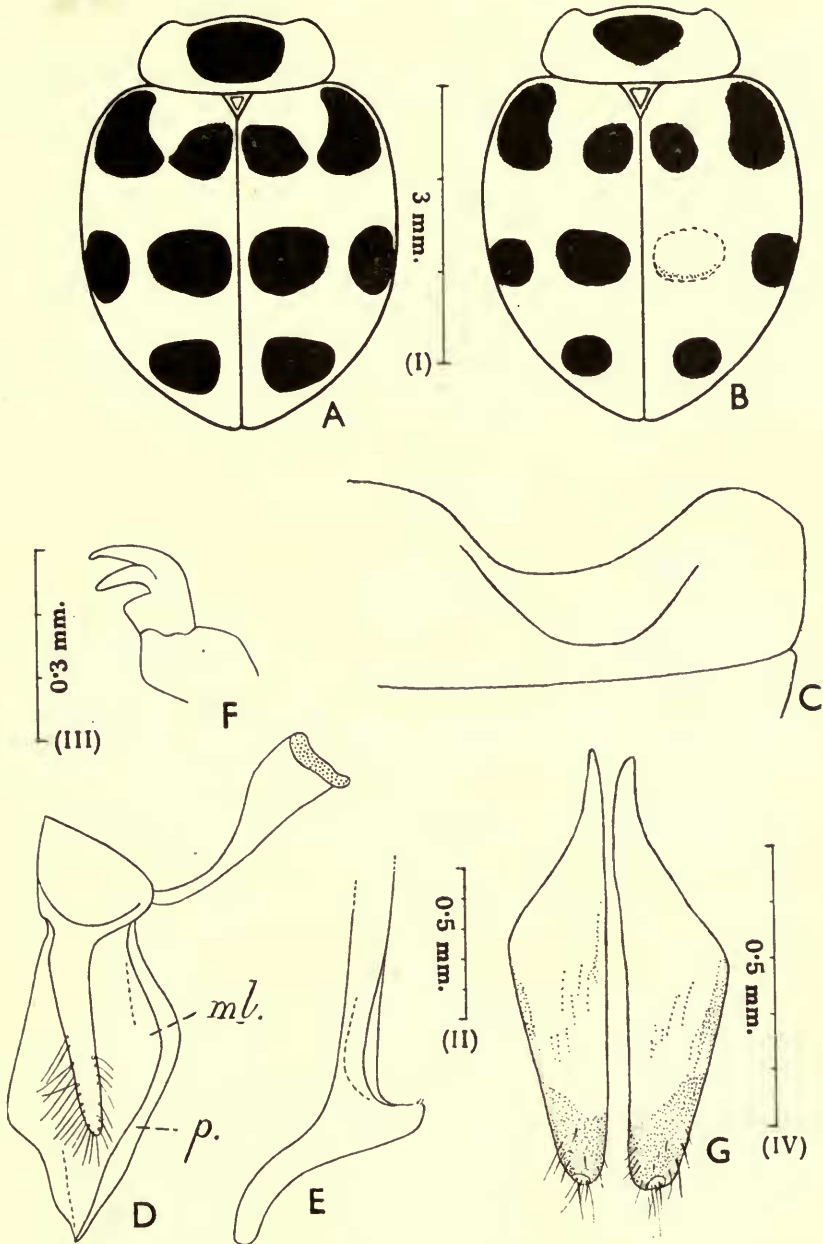


FIG. 3. *Afissula sanscrita* (Crotch). A and B, outlines showing variation in pronotal and elytral patterns. C, part of the first abdominal sternite showing the abdominal line. D, lateral view of the male genitalia except the siphus. E, apex of siphus. F, bifid claw with the basal tooth. G, female genital plates (ix sternite). (I) scale for figs. A and B; (II) for figs. C, D, E; (III) for fig. F; (IV) for fig. G.

Holotype. ♀, TIBET, Rongshar Valley, 10,000 ft., 26.vi.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London.

Paratype. ♀, INDIA, Snooranga, West Almora Division (Kumaon Hills, U.P.) 8,000–12,000 ft., June 1919 (*H. G. Champion*), in Z.S.I. Collection, Calcutta.

Paratype from Snooranga, in the Kumaon Hills agrees in all respects with the holotype except for the small differences in the outline of black bands.

The species comes close to *Afissa nepalensis* Kapur, 1958, in general appearance but can be easily distinguished from the latter by differences in the colour-pattern of the pronotum and the elytra. The pronotum in *A. nepalensis* has the median black marking much narrower and has in addition two black spots situated on either side of it. The black bands on the elytra are joined sublaterally and partly along the suture in *A. nepalensis* but are quite independent of each other in *A. hingstoni*. The pubescence is greyish on the black areas in the latter and black in the former. The elytral punctation is also relatively coarse in the latter.

***Afissula sanscrita* (Crotch), comb. nov.**

(Text-figs. 3A–G)

*Epilachna sanscrita* Crotch, 1874 : 82.

*Solanophila sanscrita* (Crotch) Mader, 1927 : 45.

*Epilachna (Solanophila) sanscrita* Crotch ; Korschefsky, 1931 : 24.

Material. 1 ♀, SIKKIM, Singhik, 3,500 ft., 23.iv.1924 (*R. W. G. Hingston*).  
1 ♀, TIBET, Rongshar Valley, 10,000 ft., 26.vi.1924 (*R. W. G. Hingston*).

Our material compares well with the type in Crotch's collection. There are more examples of the species in the B.M. and Z.S.I. collections which show that while the arrangement of spots is constant, there is considerable variation in their size. The colour-pattern of the two examples under report is shown in Text-fig. 3, A and B. The tarsal claw with a basal tooth (F), the bulbous median lobe (*ml*) of the male genitalia (D), and the elongate, filiform female genital plates (G) are some of the characters of the species which show that it belongs to the genus *Afissula* Kapur, 1958.

***Afidentula himalayana* sp. n.**

(Text-figs. 4A–B, 5A–J)

♂, ♀. Body shortly oval, rather small, and moderately convex. Head testaceous, eyes dark grey, apices of mandibles dark brown to piceous, pubescence greyish. Pronotum and elytra variable in coloration ; some with testaceous to reddish-testaceous background and black spots (type pattern), others with the black pigmentation increased so much as to leave only small testaceous, irregular areas or spots on the elytra (var. *championi*, see below). The colour pattern of the holotype as follows : A quadrangular black spot in the median half of the pronotum (Text-fig. 4, A), its posterior margin broadly tricuspid. Pubescence greyish on both the testaceous and black areas. Scutellum testaceous. Altogether 7 black spots on each elytron arranged as 2, 2,  $\frac{1}{2}$ , 2, in addition there is a faint indication of an apical spot. Numbering the spots on the right elytron, from the base to the apex and from the suture to the external margin, the spots are as follows : spot no. 1, large, subrounded, extending from below the level of the apex of scutellum to as far as about one-fourth the length of the elytra, narrowly separated from the suture ; spot 2, subtriangular with the apex close to and at level with the



small humeral callus and the base at level with that of spot 1; spot 3, discal, a little smaller than the preceding spots, obtriangular (directed towards the apex); spot 4, subquadrangular, slightly smaller, situated at level with spot 3, narrowly separated from the external margin; spot 5, slightly smaller than spot 3, sutural, situated a little below the middle of the suture and forming a circular spot with the opposite spot on the other elytron; spot 6, smaller, roundish and situated at about three-fourths the length of the elytron and slightly away from the suture; spot 7 similar, fairly close to the external margin and at level with spot 6. Pubescence greyish on the testaceous areas and piceous on the black spots. Underside with the prosternum, mesosternum and metasternum, the basal four or five abdominal sternites and the coxae black or piceous; sometimes the anterior one or two pairs of coxae testaceous, the epipleura and the last one or two abdominal sternites testaceous to reddish-testaceous; legs testaceous, sometimes with the central part of the last pair of femora fuscous.

*Head* nearly one and a half times as broad as long, with fine, impressed and fairly close punctation; pubescence also fine, short and fairly close; antennal sockets clearly away from the eyes, the distance between the sockets distinctly more than that between the socket and the eye; antennae nearly as long as breadth of the head, with a relatively thickened and compact club; clypeus relatively narrow; labrum small, slightly rounded at the base and widely emarginate in front, exposing much of the short, compact mandibles; each mandible subtriangular, strongly built, with three apical, unserrated teeth (Text-fig. 5, A); maxilla characterized by a narrow, subtriangular galea, covered as usual with hair, lacinia also small

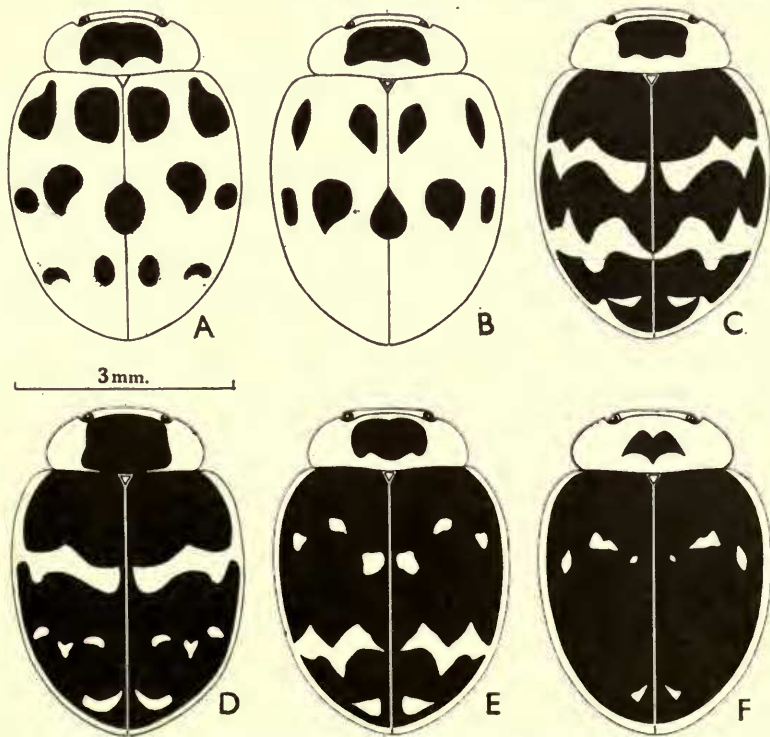


FIG. 4. Outlines showing patterns of *Afidentula himalayana*, sp. n. A, the pattern of the holotype (from Sikkim). B, variation wherein the apical pair of elytral spots is absent (from Darjeeling). C-F, patterns of *A. himalayana* var. *championi*, var. n. (from Kumaon Hills).

but with tufts of relatively long hair. *Pronotum* transverse, a little more than twice as broad as long, broadly emarginate anteriorly, with rounded anterior angles and subrounded lateral margins; punctations as fine and impressed as on the head, pubescence also similar. *Scutellum* triangular with the sides slightly longer than the base, with very fine and fairly close punctation and pubescence. *Elytra* oblong, twice as long as broad, humeral calli present, the shoulder angles rounded, lateral margins moderately rounded and bordered for about four-fifths of the length, the apical angles rounded; punctation mixed, the coarse punctures fairly impressed and close, and interspersed rather uniformly among the fine and close punctures; pubescence very fine, short and fairly close. *Underside* with the prosternum finely and sparsely punctate, and the mesosternum more coarsely and closely punctate; metasternum more finely punctate, with a distinct median stria and a moderately coriaceous surface; prosternal and elytral

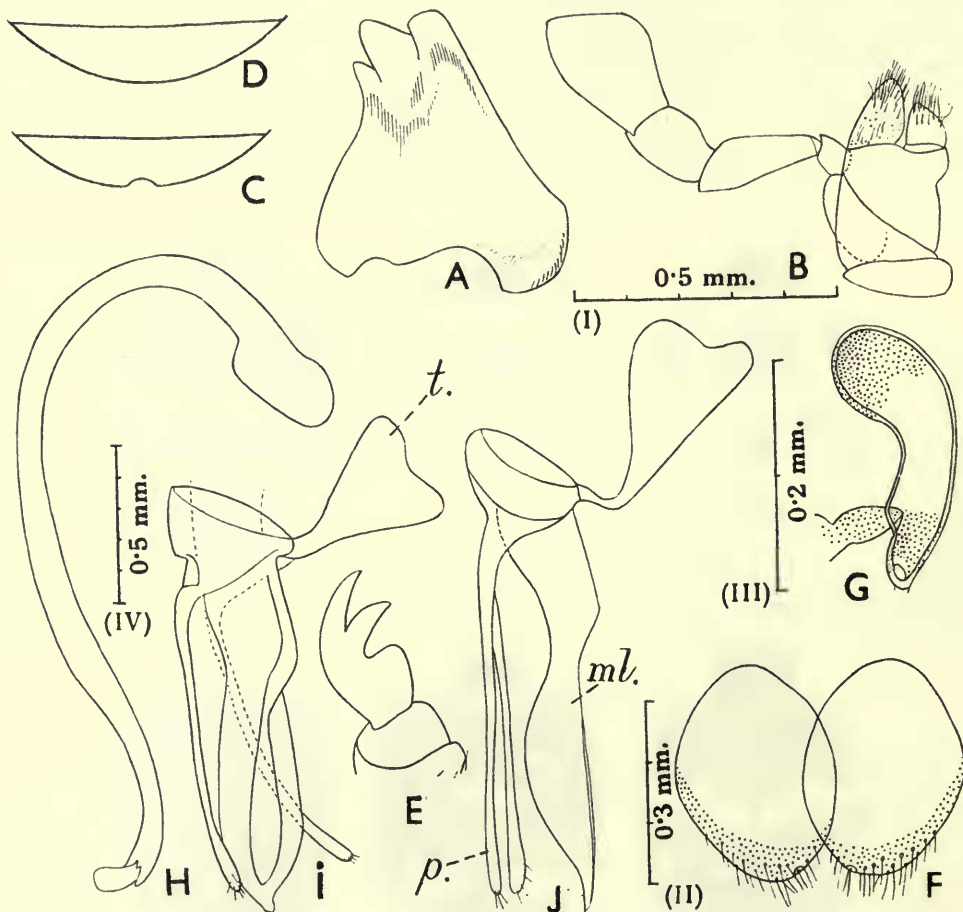


FIG. 5. *Afidentula himalayana*, sp. n. A, mandible. B, maxilla. C, the last visible abdominal sternite in the female. D, the same in the male. E, bifid claw with the basal tooth. F, female genital plates (ix sternite). G, the spermatheca. H, the siphon. I, male genitalia except the siphon, ventro-lateral view. J, the same, lateral view (*ml*, median lobe, *p*, parameres, *t*, trapes). (I) scale for figs. A, B; (II) for fig. F; (III) for fig. G; (IV) for figs. H, I, J.

epipleura without distinct foveae ; claws bifid, each provided with a basal tooth, the inner division of the claw slightly shorter than the outer one, the basal tooth semiquadrate (Text-fig. 5, C) ; abdominal sternites more coarsely punctate than any of the thoracic sternites, but with short and depressed pubescence ; abdominal lines subterminal, complete ; sixth or the last visible abdominal sternite entire, broadly rounded apically in the female (Text-fig. 5, D), and rounded, with a small apical notch in the male (Text-fig. 5, E). *Female genitalia* with the genital plates subcircular, slightly longer than wide, provided with short, rather sparse hair towards the apical margin (Text-fig. 5, F) ; spermatheca nearly sausage-shaped, slightly narrowed proximally (Text-fig. 5, G). *Male genitalia* relatively well-developed, siphon more or less sigmoid (Text-fig. 5, H), basal piece relatively short, trabes well-developed, broad, spatulate distally, parameres as long as the median lobe, but narrow and with a few short hairs at the apex, the median lobe about four times as long as broad, slightly bent at the basal one-third, concave in the distal two-thirds, and narrowed subapically to a fine pointed apex (Text-fig. 5, H) viewed from the side, it gives the appearance of a spoon (Text-fig. 5, J).

Length ♂, 4.3-5.1 mm., ♀, 5.0-5.3 mm.; breadth ♂, 3.0-3.8 mm., ♀, 3.5-4.0 mm.

Holotype. ♀, SIKKIM, Tsuntang, 7,000 ft., 25.iv.1924 (*R. W. G. Hingston*) ; in the British Museum (N.H.), London. (Female genitalia and abdominal sternites mounted between two coverslips on a card and on the same pin as the specimen.)

Allotype. ♂, INDIA, Darjeeling, 7,000 ft., 9.viii.1924 (*R. W. G. Hingston*) ; in the B.M. (N.H.) ; with spots smaller but the same number as the holotype.

Paratypes. 10 examples : 1 ♀, SIKKIM, Lachen, 8,000 ft., 25.iv.1924 (*R. W. G. Hingston*) ; pattern more or less like the holotype ; mouth-parts, front legs, abdominal sternites and female genitalia mounted on slide ; in the Z.S.I. collection. The remainder of the nine examples are not from the Expedition's material but with one exception belong to Z.S.I. 1 ♀, SIKKIM, Gopaldhara, Rungbung Valley, 1916 (*H. Stevens*), in the B.M.(N.H.), black elytral spots well-developed with a tendency for spots 6 and 7 to be connected by a thin, subtransverse line. 1 ♂, 1 ♀, Lachen Valley (no further data), the genitalia mounted between two cover-slips, on a card and pinned along with the specimen ; spot 7 missing, otherwise the pattern similar to that of the holotype. 2 ♀ near Darjeeling, 7,000-8,000 ft., —.v.1910 (*R. B. Horsfak*), elytral spots 1 to 5 generally reduced, in one example spot 6 very much reduced and faint and 7 absent, in the other example spot 6 missing and 7 very small and faint. 1 ♂ SIKKIM, Zema, ca. 2,697 m., 26.v.1959, genitalia mounted as above. 2 ♀ SIKKIM, Lachen, ca. 2,706 m., 19-20.v.1959, genitalia mounted. 1 ♀ SIKKIM, Sha Chu, ca. 2,879 m., 16.v.1959 (all *A. G. K. Menon*).

The characteristic structure of the mouth-parts, the presence of a quadrate basal tooth on the bifid tarsal claws and the structure of the male and female genitalia in the species, are characteristic of the genus *Afidentula* Kapur, 1958. *A. himalayana* is distinguishable from *Afidentula manderstjernae* (Mulsant) (3.4 mm. long) and *Afidentula minima* (Gorham) (3.0 mm.), the other two species of the genus, by its slightly larger size, and the different colour-pattern, although the post-median sutural spot appears to be a common feature of the three species. In *A. manderstjernae*, the pronotal spot is generally absent or more diffused, while the two subapical elytral spots are usually united into one subquadrate spot, in contrast to the two usually separate spots in *A. himalayana*. In *A. minima*, on the other hand, the pronotal spot is absent and the external elytral margin bordered with black. All

three species are further distinguishable by the structure of the male genitalia which is different for each species.

*Afidentula himalayana* var. *championi* var. n.

(Text-figs. 4C-F)

There are 33 examples, all from the Kumaon Hills, Uttar Pradesh, apparently collected on two different occasions by Mr. H. G. Champion, in which the black elytral spots are enlarged and confluent in various manners. Some of the elytral patterns are illustrated in Text-fig. 4, C-F. Generally, spots 1 and 2 join to form a broad basal band; spots 3, 4 and 5 also join to form a transverse median band; spots 6 and 7 are also enlarged and confluent so as to form a transverse sub-apical band (Text-fig. 4, C); sometimes the median and sub-apical bands are connected at various points so as to leave only a few, irregularly demarcated, testaceous areas in between the two bands (D), likewise the basal and the median band may also join one another in places (E); in some rare instances all the three bands are connected so as to leave only a few, irregular, testaceous spots near the sub-basal and sub-apical areas. The pronotal spot, on the other hand, increases or decreases slightly, independently of the increased pigmentation of elytra, as is evident from the outline of patterns given in Text-fig. 4, C-F. All these examples are being named as variety *championi* for convenience of reference.

It may, however, be noted that all the typical examples of the species detailed above come from the eastern Himalaya, while all the examples of the variety *championi* before me are from the Kumaon Hills, i.e., more from the western Himalaya. The material under study would strongly suggest that the variety *championi* may deserve the rank of a subspecies. However, as very little collecting has been done in the intervening parts of the Himalaya, it is probable that both the typical form as well as the variety mentioned above, may in reality be more widely distributed.

Material. Total 33 examples as follows:—12 examples, INDIA, West Almora, Kumaon Hills, U.P. (*H. G. Champion*) (no further data available), (8 exs. in B.M. (N.H.) and 4 in Z.S.I.); 21 examples, Pindar Valley, 8,000-11,000 ft., Kumaon Hills (*H. G. Champion*) (16 in B.M. (N.H.) and 5 in Z.S.I.); ♂ and ♀ genitalia of some examples from both the series mounted between two coverslips and pinned with the specimens.

Subfamily COCCINELLINAE

Tribe Coccidulini

*SINGHIKALIA* gen. n.

Type species: *Singhikalia ornata* Kapur sp. n.

Body large, subcircular, moderately convex, with fine, fairly close and subdepressed pubescence, and fine and impressed punctation except on the elytra where coarse punctures are interspersed among very fine punctures; eyes rather coarsely granulated; antennae 11-segmented, fairly long, reaching the middle of the lateral margin of pronotum, the apical three segments forming a fairly compact club; labrum transverse, almost covering the mandibles



which are bifid at the apex and provided, like the other carnivorous species, with a basal tooth each ; pronotum transverse (5 : 9), broad at the base, moderately rounded laterally, distinctly narrowed and emarginate anteriorly, with acute anterior angles ; elytra with a distinct humeral callus, lateral margins moderately reflexed or bordered in the basal three-fourths of the length, the pronotal epipleura at the anterior angles and the elytral epipleura for the most part of their length subdepressed, without foveae for reception of the knees ; prosternum widely but shallowly emarginate in front, with two subparallel carinae which do not reach the anterior margin ; metasternum with a longitudinally median stria running throughout its length ; abdominal lines short, incomplete, with the distal part oblique and faint.

This genus may be placed in the tribe Coccidulini on account of its relatively coarse eyes, long antennae, mixed type of elytral punctation, etc., and may come close to the genus *Oridia* Gorham, described from Burma, on account of its large size. It is, however, easily distinguishable from the latter and other genera of the tribe Coccidulini by several characters which may necessitate the naming of a new tribe for the genus. For example, it can be distinguished from *Oridia* as well as *Rhizobius* Stephens, *Aulis* Mulsant and *Sumnius* Weise, several species of which occur in India and neighbouring countries, by the fine, rather close, and short pubescence, the narrow anterior angles of pronotum, relatively less coarse eyes, and by the reflexed external margins of the elytra. Superficially it may resemble certain Noviini but can be easily recognised by the 11-segmented antennae instead of the 8-segmented ones in Noviini and also by several other characters, such as the shape and structure of the pronotum and prosternum. Eyes are more coarsely granulate than is the case either in the Noviini or the Scymnini or the Ortaliini. Besides, the Scymnini are generally small and do not usually possess mixed (or double) type of elytral punctation. The latter is also true of Ortaliini which are further characterized by the presence of a prominent canthus in the eye and by the slender antennae.

*Singhikalia ornata* sp. n.

(Text-figs. 6A-D, 7A-H)

♂, ♀. Head reddish-testaceous except for the black eyes, the pronotum also reddish-testaceous, with a pair of large sub-basal spots as shown in Text-fig. 6, A ; the black spot does not reach the anterior angle and the lateral margin ; scutellum reddish-testaceous ; elytra also reddish testaceous with a total of 14 black spots of variable size, arranged as 2, 2, 1, and a narrow black border along the basal half of the external margins of the elytra ; the elytral spots (Text-fig. 6, A) may be described as follows : the scutellar spot is elongate-oval, begins from the base of the elytron close to the base of the scutellum, and extends along the scutellar margin for a short distance of 1 mm. ; the shoulder spot appears to be a compound spot (formed as if by the confluence of an outer, smaller, rounded spot with an inner, larger, and oval spot), extending to about one-fourth the length of elytron and touching the black external border of the elytron just below the level of the humeral callus ; in one of the three examples, this spot is much reduced in size and broken into two ; the discal spot is roundish, moderately large, situated above the transverse median line of the elytra and close to the suture, not touching the latter in two examples but pointed posteriorly and touching the suture in one example ; the median lateral spot largest, transverse, almost level with the discal spot and confluent with the black, elytral border ; the two post-median spots roundish, smaller than the discal spot, the inner one a little more distant from the suture than the discal spot, the outer one slightly larger than the inner spot and touching the external margin ; the subapical spot almost equal to the external, post-median spot, mostly rounded, free of the lateral and

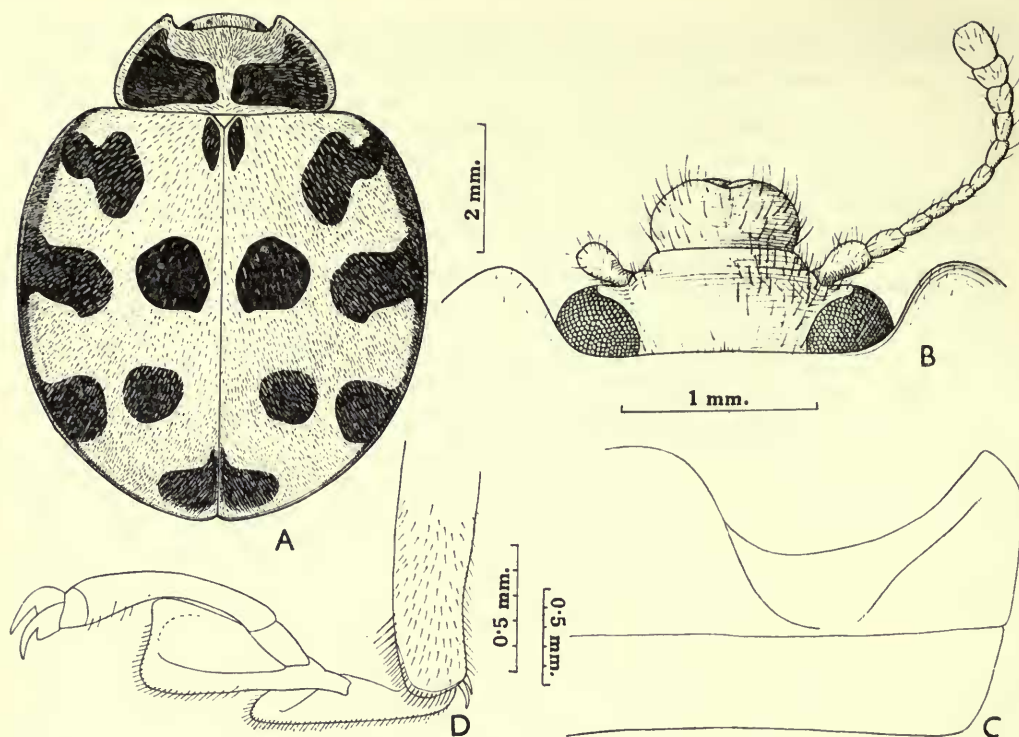


FIG. 6. *Singhikalia ornata*, gen. et. sp. n. A, outline showing the pattern. B, front view of the head. C, part of first two abdominal sternites showing the abdominal line. D, apex of tibia, the tarsi and claws.

apical margins though abutting upon the sutural margin where it is drawn out for a short distance. Underside testaceous to reddish-testaceous, except for the dark, piceous to black, posterior parts of the prosternum and mesosternum, the metasternum and most of the median part of the abdominal sternites; the legs and epipleura are also testaceous except for a few small piceous touches, here and there, on the coxae, femora and tibiae.

*Head* nearly as long as broad (Text-fig. 6, B), eyes moderately coarsely faceted, antennae arising a little in front of rather than between the eyes, 11-segmented, the last three segments forming a fairly compact club (Text-figs. 6, B; 7, A), the penultimate segment rather transverse, the apical one a little longer than broad, slightly obliquely truncated apically; labrum (Text-fig. 7, B) transverse, subquadrate, nearly twice as wide as long, mandibles (Text-fig. 7, C) bifid at the apex, each provided with a basal tooth, maxillary palpi with the last segment securiform, nearly as long as the preceding two segments together (Text-fig. 7, D), labium (Text-fig. 7, E) moderately wide anteriorly; the frons and clypeus with fine, fairly close and impressed punctation, and moderately long, rather sparse, and light brown pubescence. *Pronotum* transverse in outline as described for the genus, punctation fine, close, and impressed except for the slightly coarser punctures near the anterior angles, pubescence fine, short to moderately long, close, depressed, directed anterolaterally and light brown in colour; very narrowly margined laterally and along the anterior angles, plain for most of the anterior and basal margins. *Scutellum* triangular, with the base as wide as the sides, very finely punctate and with a few delicate, short hairs. *Elytra* with the maximum convexity before the middle, the humeral calli well-defined, shoulder-angles rounded, lateral margins rebordered, expanded laterally in the basal



two-thirds, more so in the basal one-third of the length of elytra, apical angles rounded, the punctation double, the fine punctures close and impressed, the coarse punctures also impressed, interspersed among the fine punctures, pubescence similar to that on the pronotum but a little shorter. *Underside* with short, depressed pubescence and fine punctation, the prosternum widely and shallowly emarginate in front, not covering the mouth-parts, with a pair of parallel carinae which stop short of the anterior margin; mesosternum widely emarginate in front, narrow and transverse at the base; metasternum with a median, longitudinal stria extending from the anterior to the basal margin, the disc otherwise flat, with a number of sparse, coarse and impressed punctures; the posterior pair of coxae more widely spaced than either of the anterior pairs, legs comparatively slender, the claws simple, each with a subquadrate basal-tooth (Text-fig. 6, D); five abdominal sternites visible, abdominal lines incomplete (Text-fig. 6, C), reaching the apical margin of the first segment and running along it for a short distance, a faint oblique line directed towards the antero lateral angle also visible (in examples where abdomen has been treated with KOH, it vanishes), but apparently unconnected with distal part of the abdominal line. *Male genitalia* with the basal piece of moderate size, the median lobe like a gradually narrowed tube with rounded apex, parameres narrow, subequal in length to the median lobe, rounded at the apex, with moderately long and fairly close setae on the

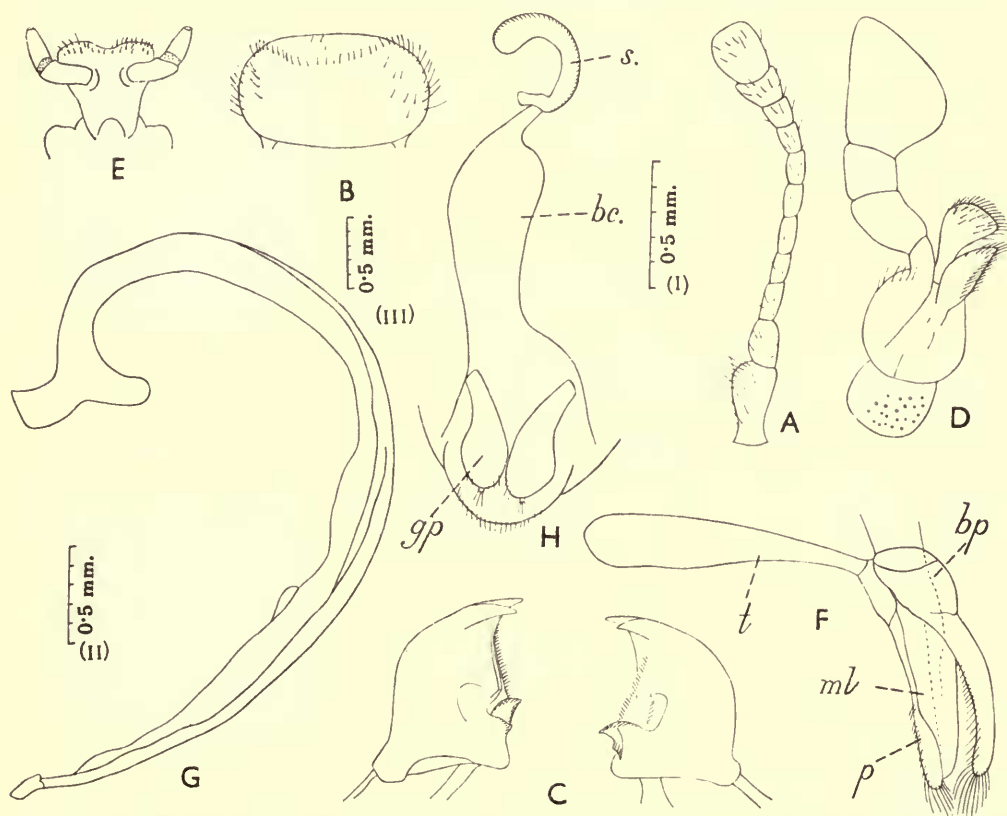


FIG. 7. *Singhikalia ornata*, gen. et. sp. n. A, antenna. B, labrum. C, mandibles. D, maxilla. E, labium. F, male genitalia except the siphus (*bp*, basal plate; *ml*, median lobe; *p*, parameres; *t*, trabes). G, the siphus. H, parts of female genitalia (*s*, spermatheca; *bc*, bursa copulatrix; *gp*, genital plates). (I) scale for figs. A-E; (II) for figs. F, G; (III) for fig. H.

surface facing the median lobe, trapes (*t*) a little longer than the median lobe and basal piece combined, gradually expanded distally and rounded at the apex, the siphon evenly curved proximally, less so and narrowed distally, rather weakly chitinised on the inner side, the siphonal capsule with the inner arm narrower than the outer one (Text-fig. 7, F). *Female genitalia* with the pair of genital plates (*gp*) elongate (Text-fig. 7, H), narrower at the base, gradually expanded and rounded towards the apex and each provided with a knob-like stylus bearing three to four long setae, the apical margin of the plates also provided with a number of shorter setae, bursa copulatrix (*bc*) large and tubular; the spermatheca (*s*) like a blind, gradually expanded tube which is curved to form about three-quarters of a circle.

Length 7.5–7.8 mm.; breadth 6.3–6.5 mm.

Holotype. ♂, SIKKIM, Singhik, 3,500 ft., 23.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (Genitalia dissected and mounted between two coverslips and attached to the same pin as the specimen.)

Allotype. ♀, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*); also in the British Museum (N.H.), London. (♀ genitalia mounted as above.)

Paratype. 1 ex., same data as the allotype, in the Z.S.I. collection, Calcutta.

In the remarks following the description of the genus, the important characters of the species have been compared with those of *Oridia pubescens* Gorham, from Burma. It may be further stated that *S. ornata* has black spots on the reddish testaceous background of the pronotum and elytra, whereas *O. pubescens* is without any ornamentation or colour-pattern.

### Tribe Noviini

#### *Rodolia guerini* (Crotch)

*Vedalia guerini* Crotch, 1874 : 282 [Type loc., Pondicherry, India].

*Rodolia guerini* (Crotch); Korschefsky, 1931 : 101.

*Rodolia guerini* (Crotch); Kapur, 1949 : 535.

Material. 1 ♀, SIKKIM, Singhik, 3,500 ft., 23.iv.1924 (*R. W. G. Hingston*).

In the above example the pair of basal spots join each other to form a bundle-shaped transverse band. In every other respect the example agrees with other material of the species from various parts of India.

### Tribe Scymnini

#### *Pullus bourdilloni* Kapur

*Pullus bourdilloni* Kapur, 1958 : 335–338, fig. 12 [Type loc., Nepal].

Material. 5 examples, SIKKIM, Singhik, 3,500 ft., 23–24.iv.1924 (*R. W. G. Hingston*).

In all the five examples (3 females, 2 males) the elytra are black with testaceous apices as described for pattern No. 3 of this species (*vide* Kapur, 1958 : 337, fig. 12 C). In respect of other external characters and the structure of genitalia, the material under report agrees with the earlier description.

*Pullus testacecollis* sp. n.

(Text-figs. 8A-C)

♂. Body oblong-oval, convex, pubescence greyish throughout. Head testaceous with the apices of mandibles darker and the eyes black. Thorax also testaceous, lighter anteriorly and showing clearly part of the black eyes. Scutellum testaceous. Elytra black except the apical one-fourth which is testaceous, widely emarginate at the base (Text-fig. 8, A). Under-side testaceous excepting the piceous to black mesosternum, the black metasternum and elytral epipleurae and the testaceous legs.

*Head* with fine and rather sparse punctation, and fine, short and sparse pubescence. *Pronotum* transverse, nearly twice as wide as long in the middle, slightly emarginate in front and narrowed anteriorly, anterior angles slightly acute, posterior angles a little rounded; with fine, impressed and rather sparse punctation and short, sparse and suberect pubescence. *Scutellum* with a few fine punctures and short hairs. *Elytra* rather elongate-oval gradually

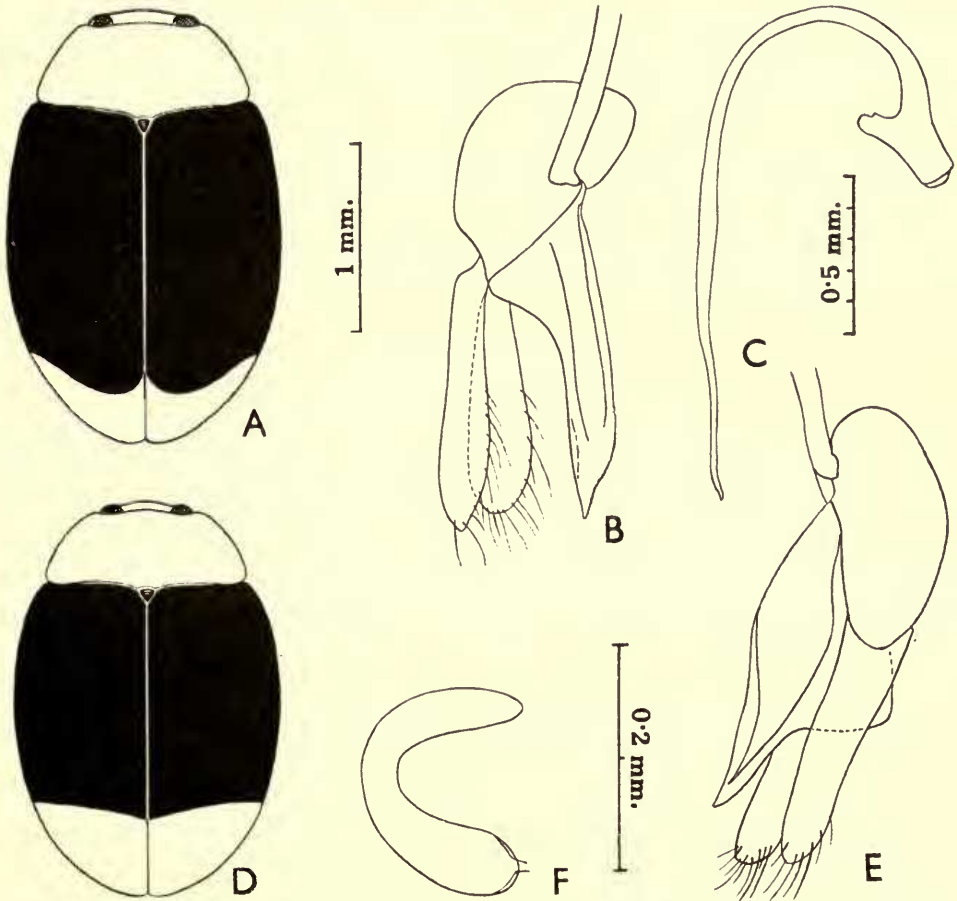


FIG. 8 A, outlines of *Pullus testacecollis*, sp. n. B, male genitalia of the same except the siphon. C, the siphon. D, outline of *Pullus hingstoni*, sp. n. E, male genitalia of the same except the siphon. F, spermatheca, also of the same. (1.0 mm. scale for figs. A, D; 0.2 mm. scale for figs. B, E, F; 0.5 mm. scale for fig. C.)

narrowed in the apical one-fifth of the length, moderately convex, shoulder-angles a little obtuse, humeral calli present, apical angle rounded, punctation mostly fine, very slightly coarser than that on the pronotum, more impressed and closer; pubescence similar to that on the pronotum. *Underside* with the prosternal carinae parallel except near the anterior margin where they meet in a narrow arch; the space between the carinae finely punctured; meso- and metasternum with relatively coarse, impressed and fairly close punctures. *Male genitalia* (Text-fig. 8 B, C) with the basal piece broad, median lobe broad at the base but narrow and tubular from the middle to the pointed apex; the parameres spathulate, nearly as long as the median lobe; the siphon long and tapering at the apex, curved proximally for one-third of the length, the inner arm of the siphonal capsule short, narrow and with a small notch.

♀. Unknown.

Length 2.2 mm.; breadth 1.5 mm.

Holotype. ♂, SIKKIM, Tsuntang, 6,000 ft., 24.iv.1924 (R. W. G. Hingston), in the British Museum (N.H.), London.

The species comes close to *Pullus pallidicollis* (Mulsant) which is known from various parts of Asia including Burma. *P. pallidicollis* is, however, more rounded and convex and slightly smaller than *P. testacecollis*. The pubescence in the former is coarser than in the latter; in respect of coloration of the elytra also, the two species are easily distinguishable; in *pallidicollis* the testaceous area of the two elytra together gives a semilunar appearance, whereas in *testacecollis* each testaceous apical part is broadly curved at the base. From other species like *Pullus apiciflavus* (Mots.) and *Pullus pyrochellus* (Mulsant), *P. testacecollis* is easily distinguishable by the absence of a piceous or black semicircular marking on the pronotum, these being present in the other two species.

### *Pullus hingstoni* sp. n.

(Text-figs. 8D-F)

♂, ♀. Similar in outline to *Pullus testacecollis* Kapur but less elongate (Text-fig. 8, D); with the scutellum black, head, pronotum and the apical one-third of the elytra reddish-testaceous, the line formed at the meeting place of the black and the reddish-testaceous parts of the two elytra together, almost straight to widely rounded (Text-fig. 8, D).

*Head* with fine, rather sparse and impressed punctation, and short and sparse pubescence. *Pronotum* similar to that of *P. testacecollis* except for the slightly more impressed and coarse punctation and relatively longer pubescence. *Elytra* with coarse, less impressed and shallower punctation than that in *P. testacecollis*; pubescence also relatively long, coarse and sparse when compared with that in the latter. *Underside* with the prosternal carinae almost straight, slightly convergent, but each meeting the anterior margin independently; the meso- and metasternum mostly with coarse and impressed punctures, and relatively long and subdepressed pubescence; the last abdominal segment broadly emarginate apically in the male, and rounded in the female. *Male genitalia* (Text-fig. 8, E) characterized by a short median lobe which is broad in the basal half and with a prominent keel, narrowed at the apical half and with pointed apex, parameres longer than the median lobe, narrow, rounded at the apex, and with a few setae. *Female genitalia* with the ovipositor elongate and slightly narrowed apically; spermatheca semicircular (Text-fig. 8, F), slightly tapering towards the distal end.

Length, 2.0 mm.; breadth 1.4 mm.

Holotype. ♂, SIKKIM, Tsuntang, 6,000 ft., 25.iv.1924 (R. W. G. Hingston), in the British Museum (N.H.), London.

Allotype. ♀, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (R. W. G. Hingston), in the British Museum (N.H.), London.



This species is fairly closely related to *Pullus testacecollis* Kapur described earlier, from which it may be distinguished by the differences in the shape of the body, the elytral colour-pattern, the punctation and pubescence and the structure of the male genitalia, as described above. The female example, though from Singhik (5,000 ft.) in the State of Sikkim, apparently belongs to this species as it is very similar in shape, colour-pattern, punctation pubescence, etc., to the holotype from the neighbouring Tsuntang (6,000 ft.).

### *Pullus* sp.

Material. 1 ♀, SIKKIM, Lachen, 8,500 ft., 25.iv.1924 (*R. W. G. Hingston*).

This example (length 2.45 mm., breadth 1.45 mm.) is more oblong than either *Pullus testacecollis* Kapur or *Pullus hingstoni* Kapur. The elytral colour-pattern is like that of the latter but the pronotum, instead of being uniformly testaceous as in the above two species, has a semicircular black area across the middle one-third of the base. Scutellum black; the female genitalia with the spermatheca rather semicircular, a little wider proximally and slightly constricted in the middle.

Scymnini of the Himalaya are very inadequately known and as the species are often not easily separated without the employment of male genital characters, it is considered best not to name this species without further material being available.

## Tribe Aspidimerini

### *Cryptogonus postmedialis* Kapur

*Cryptogonus postmedialis* Kapur, 1948 : 95-97, fig. 6 [Type loc., Ranikhet, Kumaon Hills].

Material. 6 ♂, 5 ♀, SIKKIM, Singhik, 3,500-5,000 ft., 23-24.iv.1924 (*R. W. G. Hingston*).

This species is closely related to *Cryptogonus orbiculus* (Gyllenhal) but is distributed in the Himalaya from Kumaon Hills to Darjeeling in India and Mishmi Hills in Burma (*vide* Kapur, 1948 : 96).

### *Cryptogonus quadriguttatus* (Weise)

*Aspidiphorus quadriguttatus* Weise, 1895a : 326 [Type loc., Sikkim].

*Cryptogonus quadriguttatus* (Weise) Weise, 1900 : 428.

*Cryptogonus quadriguttatus* (Weise) ; Kapur, 1948 : 97-99, fig. 7.

Material. 4 ex., INDIA, Kalimpong, 4,000 ft., 27.iii.1924 (*R. W. G. Hingston*).

This species is also distributed from the Kumaon Hills in Uttar Pradesh, to the Naga Hills and Patkai Mountains in Assam. The four examples mentioned above are uniform in coloration although the species shows considerable variation in colour-pattern.

***Cryptogonus ariasi*** (Mulsant)

*Aspidimerus ariasi* Mulsant, 1853 : 265 [Type loc., North India].

*Cryptogonus ariasi* (Mulsant) Kapur, 1948 : 102-103, fig. 9B, D, E.

Material. 1 ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).

This species is also distributed from the Kumaon Hills in Uttar Pradesh to Lebung, 5,000 ft., in Burma (*vide* Kapur, 1948 : 102-3).

***Cryptogonus hingstoni*** Kapur

*Cryptogonus hingstoni* Kapur, 1948 : 103-104, fig. 9A, F [Type loc., Sikkim, Singhik].

Material. 4 ex., SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).

This species is closely related to the preceding species, though it is easily distinguishable from it by the coloration and other morphological characters.

***Cryptogonus himalayensis*** Kapur

*Cryptogonus himalayensis* Kapur, 1948 : 108-109, fig. 11 [Type loc., Ruby Mines, Burma].

Material. 1 ♀, SIKKIM, Singhik, 3,500 ft., 23.iv.1924 (*R. W. G. Hingston*).

This species belongs to the *fulvoterminalis* group of four species (Kapur, 1948 : 105) which so far as known mostly occur in Burma.

***Cryptogonus complexus*** Kapur

*Cryptogonus complexus* Kapur, 1948 : 110-111, fig. 12 [Type loc., Patkai Mountains, Assam].

Material. 1 ex., SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).

Besides Assam and Sikkim, this beautiful species is found in Burma's Mishmi Hills.

Tribe **Chilocorini*****Chilocorus hauseri*** Weise

*Chilocorus hauseri* Weise, 1895c : 135 [Type loc., Sikkim].

*Chilocorus hauseri* Weise ; Sicard, 1913 : 500.

Material. 1 ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).

The example from the type locality agrees with the original description given by Weise. Sicard (*loc. cit.*) further recorded it from Burma and Tali (Yunan).

***Chilocorus braeti*** Weise

*Chilocorus braeti* Weise, 1895b : 154 [Type loc., Kurseong, N. Bengal].

Material. 1 ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).  
1 ♀, INDIA, Darjeeling, 7,000 ft., 1-14.vi.1924 (*Miss Wetherall*). Two further examples (♂, ♀) from Darjeeling district are in the Z.S.I. collection.

This species is characterized by the typically cordate outline and shining black coloration dorsally, the finely punctured elytral disc and the coarsely punctured areas along the lateral margin. The size of the species varies from 4.2 mm. to 5.5 mm.



Tribe **Synonychini*****Leis dimidiata*** (Fabricius)

*Coccinella dimidiata* Fabricius, 1781 : 94 [Type loc., Coromandel].

*Leis dimidiata* (Fabricius) Mulsant, 1850 : 242.

*Leis dimidiata* (Fabricius) ; Korschefsky, 1932 : 273-274.

*Leis dimidiata* (Fabricius) ; Kapur, 1958 : 329.

Material. 1 ♂, SIKKIM, Pedong, 4,000 ft., 29.vii.1924 (*R. W. G. Hingston*).

This species is extremely variable in colour-pattern, there being some 15 aberrations already recorded. The example mentioned above, however, represents the typical pattern of the species.

The species is widely distributed in northern India, especially in the Himalayas, and in China and Japan although its recorded type locality remains "Coromandel"!

***Aiolocaria hexaspilota*** (Hope)

(Text-fig. 9B)

*Coccinella 6-spilota* Hope, in Gray, 1831 : 31 [Type loc., Nepal].

*Aiolocaria hexaspilota* (Hope) Crotch, 1874 : 178.

*Aiolocaria hexaspilota* (Hope) ; Korschefsky, 1932 : 277.

*Aiolocaria hexaspilota* (Hope) ; Kapur, 1958 : 311.

Material. 2 ex., SIKKIM, Singhik, 3,500-4,000 ft., 23.iv.1924 (*R. W. G. Hingston*).

Originally recorded from Nepal, this species appears to be widespread in the Himalayas and has already been recorded from Kashmir, Sikkim and northern Burma (*vide* Kapur, 1958 : 311). Colour-pattern of the species is variable, that of the examples referred to above is shown in Text-fig. 9, B.

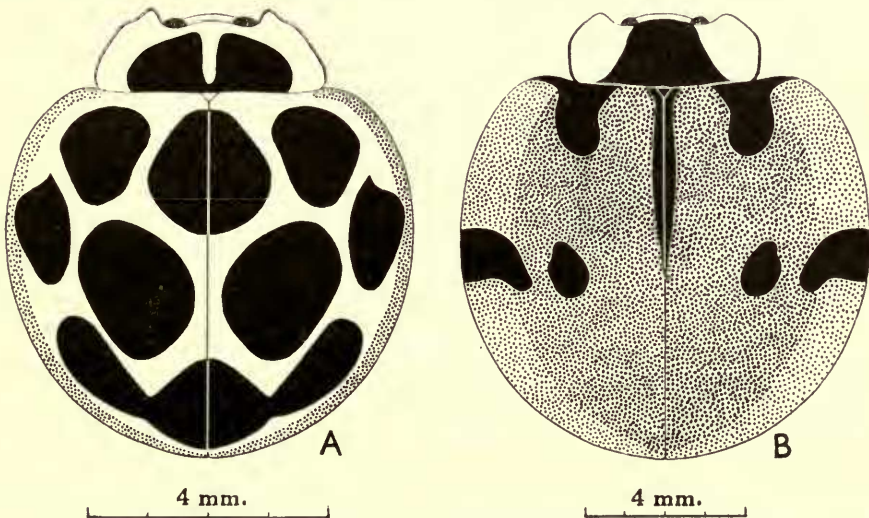


FIG. 9. Outlines showing the patterns. A, *Aiolocaria dodecaspilota* (Hope). B, *Aiolocaria hexaspilota* (Hope).

***Aiolocaria dodecaspilota*** (Hope)  
(Text-fig. 9A)

*Coccinella 12-spilota* Hope, in Gray, 1831 : 31 [Type loc., Nepal].

*Aiolocaria dodecaspilota* (Hope) Crotch, 1874 : 178.

*Aiolocaria dodecaspilota* (Hope) ; Korschevsky, 1932 : 278.

*Palaeoneda dodecaspilota* (Hope) Mader, 1933 : 93.

Material. 1 ♀, SIKKIM, Singhik, 3,500 ft., 23.iv.1954 (R. W. G. Hingston).

Mader (1933 : 93) transferred this species to the genus *Palaeoneda* Crotch but I do not believe that such a transfer is justified because a comparison of *dodecaspilota* and *Palaeoneda miniata* (Hope), the type species of *Palaeoneda*, do not show these to be congeneric ; *dodecaspilota* lacks most of the characters by which *Palaeoneda* is defined.

Already known from Nepal and Burma, the occurrence of this species in Sikkim is not surprising.

***Ballia gustavi*** Mulsant

*Ballia gustavi* Mulsant, 1853 : 165 [Type loc., N. India, Himalaya].

*Ballia gustavi* Mulsant ; Kapur, 1958 : 329.

Material. 1 ♀, SIKKIM, Singhik, 3,500 ft., 23.iv.1924 (R. W. G. Hingston).

As stated earlier (Kapur, 1958 : 329) this species is only provisionally recognised as distinct, and may in fact be a mere variety. The colour-pattern of our example agrees with the typical description of *gustavi*.

***Oenopia luteopustulata*** Mulsant

*Oenopia luteopustulata* Mulsant, 1850 : 421 [Type loc., Assam].

*Coelophora luteopustulata* (Mulsant) Crotch, 1874 : 156.

*Oenopia luteopustulata* Mulsant ; Korschevsky, 1932 : 288.

*Oenopia luteopustulata* Mulsant ; Kapur, 1958 : 329-331, figs. 7, 10.

Material. 2 ex., SIKKIM, Gantok, 5,000 ft., 19.v.1924 (R. W. G. Hingston) (1 ex., var. *pracuae* Weise) ; Singhik, 3,500 ft., 23.iv.1924 (R. W. G. Hingston) (1 ex., var. *nigromaculata* Mader).

The species is widely distributed in the Himalaya, northern India, Burma and Tibet. It is very variable in colour-pattern. In life the beetles are red and black, the red subsequently fading into light brown in museum specimens.

***Oenopia kirbyi*** Mulsant

*Oenopia kirbyi* Mulsant, 1850 : 425 [Type loc., Eastern India].

Material. 2 ex., INDIA, Kalimpong, 4,000 ft. (Darjeeling district), 27.iii.1924 (R. W. G. Hingston).

This is another species of *Oenopia* which is quite common in the eastern Himalaya. It has also been recorded from Burma. Its colour-pattern is very characteristic and in life very beautiful, being lemon-yellow and black.

*Oenopia sauzeti* Mulsant

*Oenopia sauzeti* Mulsant, 1866 : 281 ; 1870 : 55 [Type loc., India].

*Oenopia sauzeti* Mulsant ; Kapur, 1958 : 331-333, fig. 11.

Material. 1 ex., SIKKIM, Singhik, 4,000 ft., 23.iv.1924 (R. W. G. Hingston) ; 1 ex., SIKKIM, Gantok, 5,000 ft., 26.vii.1924 (R. W. G. Hingston).

*Oenopia quadripunctata* sp. n.

(Text-figs. 10A-E)

♂, ♀. Body shortly oval, moderately convex. Head black excepting the grey eyes and the brown canthus, antennae, anterior margin of labrum, the mandibles, maxillae and greater part of labium and its palpi. Pronotum (Text-fig. 10, A) black except a quadrangular flavous area on either side extending from the anterior margin to almost the base. Scutellum black. Elytron black excepting an obliquely oval, sub-basal and premedian flavous spot, another roundish and postmedian flavous spot and the flavous lateral margin composed as if of two semicircular spots butting on a narrower lateral border as shown in Text-fig. 10, A. Underside black except for the brown prothoracic and elytral epipleura, dark brown trochanters and the brown apices of the femora, the tibiae, tarsi and abdominal sternites.

Head with fine, shallowly impressed and fairly close punctures on a rather matt surface ; antennae rather short, extending at the most to as far as the foveae in the prothoracic epipleura. Pronotum moderately deeply emarginate in front, anterior angles widely rounded, posterior angles also rounded, punctation similar to that on the head. Scutellum triangular, base slightly wider than the sides, narrowly margined near the apex. Elytra with the lateral margins moderately expanded from near the shoulder angle to nearly as far as the apex ; the humeral callus indistinct, punctation impressed, only slightly coarser and sparser than that on the pronotum, spaces between the punctures shining. Underside with the prosternum and mesosternum coarsely and impressedly punctate, the former with two sub-parallel carinae reaching the anterior margin ; metasternum with fine and sparse punctation in the middle ; abdominal lines incomplete, terminal. Male genitalia with broad basal piece and oblong median lobe which is deeply and broadly emarginate apically (Text-fig. 10, D), parameres also broad and rounded at the apex, with long marginal setae ; the siphon widely curved and tapering towards the apex (Text-fig. 10, E). Female genitalia with the genital plates (ix sternite) triangular, elongate (Text-fig. 10, B), each with a well-formed papilla bearing a few setae ; spermatheca sausage-like, with an elongate ramus and nodulus as shown in Text-fig. 10, C.

Length ♂ 3.0 mm., ♀ 3.5 mm.; breadth ♂ 2.5 mm., ♀ 2.9 mm.

Holotype. 1 ♂, INDIA, Shillong (Assam), 11.iii.1960, on orange tree (S. N. Prasad) ; in the Z.S.I. collection, Calcutta (Reg. No. 14695/H4). (Male genitalia mounted between coverslips and on the same pin as the specimen.)

Allotype. 1 ♀, INDIA, Kalimpong, 4,000 ft., 27.iii.1924 (R. W. G. Hingston) in the British Museum (N.H.), London.

Paratypes. 1 ♀, with the same data as the holotype ; 1 ex., INDIA, Shillong, Kench's Trace (Assam), 14.iii.1960 (T. G. Vazirani) ; 1 ex., Shillong, Kench's Trace, 15.iii.1960 (S. N. Prasad). 1 ♀, SIKKIM, Lachung, 2,727 m., 6.vii.1959 (A. G. K. Menon). 1 ex., BURMA, Dingliang, 2,450 ft. (ca. 747 m.), Mishmi Hills, 12.iii.1935 (M. Steele) ; 1 ex., Mondon, Mishmi Hills (M. Steele) ; 1 paratype in B.M. (N.H.), the rest in Z.S.I. collection.

This species has a very pretty colour-pattern which is distinct from other known species of the genus. It is nearly as shortly oval as *Oenopia luteopustulata* Mulsant, but less convex. The female genitalia in the two are very distinct, the spermatheca

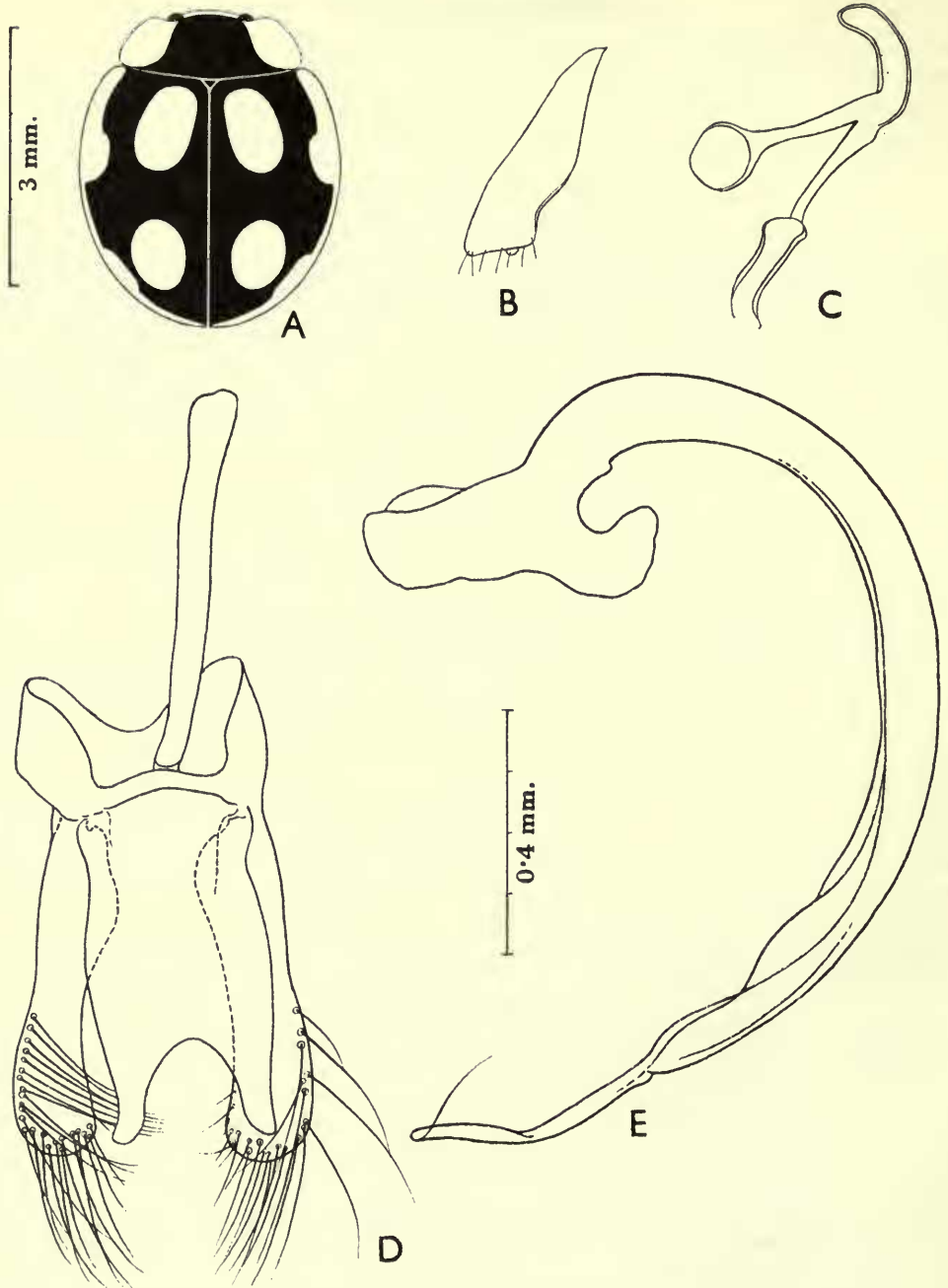


FIG. 10. *Oenopia quadripunctata*, sp. n. A, outline showing the pattern. B, genital plate of the female. C, spermatheca of the same. D, male genitalia except the siphon. E, the siphon.



in the latter being greatly curved and the genital plates being not quite as elongate (*vide* Kapur, 1958, Text-fig. 10, *c, d*). The spermatheca of *quadripunctata* is like that of *Oenopia sauzeti* Mulsant, though the infundibulum and ramus are different in outlines; the genital plates (ix sternite) are also distinct in the two species. The elytral margin in *O. quadripunctata* is more expanded than that of *O. sauzeti*. The elytral patterns in the two species are also distinct.

### *Coelophora sexareata* Mulsant

*Coelophora sexareata* Mulsant, 1853 : 181 [Type loc., N. India].

*Coelophora sexareata* Mulsant; Korschefsky, 1932 : 296.

Material. 1 ♂, 1 ♀, INDIA, Kalimpong, 4,000 ft., 27.iii.1924 (*R. W. G. Hingston*); 1 ♀, SIKKIM, Gantok, 5,000 ft., 26.vii.1924 (*R. W. G. Hingston*).

This species is widely distributed in northern India and neighbouring countries having been previously recorded from northern Bengal, Bihar, Assam, Sikkim, Nepal, Burma and West Yunnan. More recently (1958) I have collected it from Simla Hills (*ca.* 8,000 ft.). In life the colour of the elytral areoles is carmine red rather than ochreous which is the colour seen in museum collections. The sexes are easily distinguished by the frons of head being flavous in the male and black or piceous in the female.

### *Coelophora nitidicollis* sp. n.

(Text-figs. 11A-C)

♂. Body subhemispherical (Text-fig. 11, A). Head flavous in front, eyes piceous, the antennae, except the club which is darker, and mouth-parts brown. Pronotum mostly shining black with a green lustre, except along the anterior and lateral margins which are translucent; anterior margin of the black part of pronotum with two deep and oblique notches near each anterior angle. Scutellum black. Elytra testaceous except for a common sutural black stripe and an ill-defined, rather piceous, submarginal vitta running close to lateral margin; the vittae tapering at either end. The underside testaceous except for the flavous epimera, the black meso- and metasterna and the testaceous legs.

*Head* with coarse, rather impressed and sparse punctures over a matt surface, the antennae extending beyond the middle of the thoracic epipleura, apex of the club obliquely truncate. *Pronotum* with anterior margin fairly deeply emarginate, anterior and posterior angles rounded, the lateral margins moderately so, punctures a little finer than those on the head, impressed and fairly close, the spaces between punctures smooth. *Scutellum* triangular, with the base, slightly wider than the sides, with very few, fine and shallow punctures. *Elytra* with the lateral margins expanded from the shoulder angles till almost the apex, the humeral callus rather ill-defined, the punctures on the discal area similar to, though less impressed than those on the pronotum, coarser and impressed near the sutural and the expanded lateral margins, the spaces between punctures not as smooth as in the case of the pronotum. *Underside* with the prosternal carinae moderately defined, convergent, meeting below the middle of the sternum; mesosternum coarsely punctate, metasternum with similar punctuation except in the median part where the punctures are fine and sparse; the abdominal lines incomplete, subterminal, the last visible abdominal sternite in the male with a small median notch at the apex. *Male genitalia* (Text-fig. 11, B, C) with the basal piece broadly cup-shaped, the parameres elongate, a little bent at one-third of the length, slightly broader distally, a little shorter than the median lobe which is gradually narrowed distally to a pointed and a little up-curved apex; the siphon long, broadly curved proximally, almost straight towards the apex.

♀. Unknown.

Length 4.25 mm.; breadth 3.7 mm.

Holotype. ♂, SIKKIM, Tsuntang, 7,000 ft., 25.iv.1924 (R. W. G. Hingston), in the British Museum (N.H.), London.

This species is easily distinguishable from the other known species of the genus by the shining black, with a tinge of green, coloration of the pronotum, the colour-pattern of the elytra, and by the coarser punctation on the head. However, it resembles in several respects the Nepalese species, *Coelophora cincta* (Hope), which has a black pronotum with the anterior margin and the anterior two-thirds of the lateral margins bright testaceous; furthermore its elytra are testaceous with a black border along the lateral margins but without any black, common or sutural stripe.

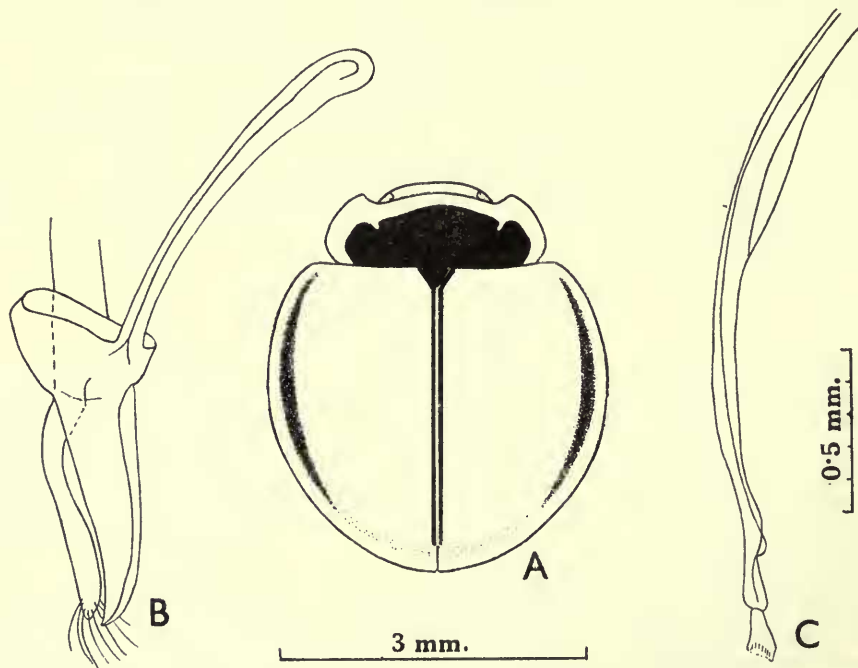


FIG. 11. *Coelophora nitidicollis*, sp. n. A, outline showing the pattern. B, male genitalia without the siphon. C, apex of the siphon. (3 mm. scale for fig. A; 0.5 mm. scale for figs. B, C.)

### Tribe Hippodamiini

#### *Hippodamia heydeni* (Weise) (Text-figs. 12A-G)

*Semiadalia heydeni* Weise, 1892 : 109 [Type loc., Margelan].

*Hippodamia heydeni* (Weise) Dobzhansky, 1927 : 216.

*Hippodamia heydeni* (Weise); Mader, 1928 : 57, pl. 9, figs. 1-4.

*Hippodamia heydeni* (Weise); Kapur, 1957 : 269-270, fig 1.

Material. 2 ex., TIBET, Tashidzom, 14,500 ft., 9.v.1924 (R. W. G. Hingston),  
4 ex., TIBET, Shekhar, 14,500 ft., 9.vii.1924 (R. W. G. Hingston).



This species, occurring at high altitudes in Tibet, shows great variation in colour-pattern (*vide* Mader, 1928 ; Kapur, 1957). The patterns of five out of the six examples mentioned above are sketched in Text-fig. 12, A–E, and show how great is the extent of variation in this species. Male genitalia, which offer the most reliable character for identification, are shown in Text-fig. 12, F, G.

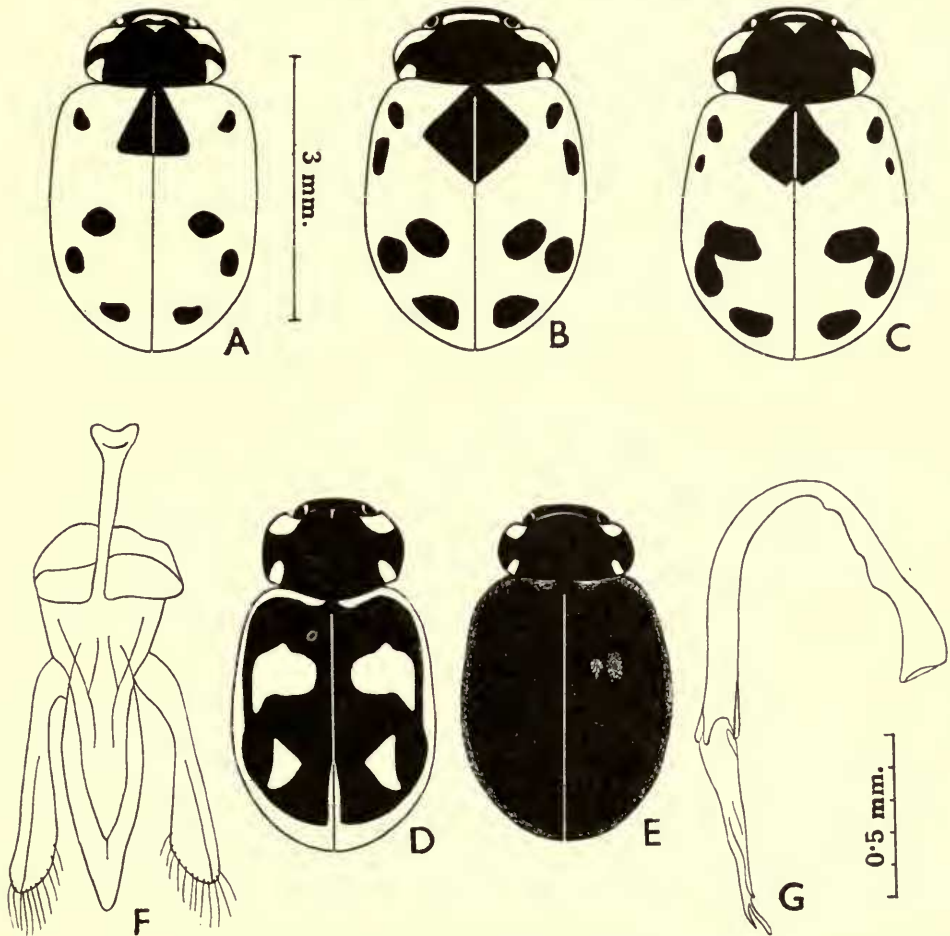


FIG. 12. *Hippodamia heydeni* (Weise). A–E, outlines showing five different patterns. F, male genitalia without the siph. G, the siph. (3 mm. scale for figs. A–E ; 0.5 mm. scale for figs. F, G.)

### *Adonia variegata* (Goeze)

*Coccinella variegata* Goeze, 1777 : 246 [Type loc., Europe].

*Adonia variegata* (Goeze) Mulsant, 1846 : 39.

*Adonia variegata* (Goeze) ; Korschefsky, 1932 : 346–359.

*Adonia variegata* (Goeze) ; Kapur, 1957 : 269–273, fig. 2.

Material. 40 ex., TIBET, Tuna (Tibetan plateau), 14,500 ft., 11.iv.1924 ; Kampa Dozong, 14,500 ft., 29.iv.1924 ; Tinki Dozong, 14,000 ft., 1.v.1924 ; Shiling, 14,000 ft., 5.v.1924 ; Shekhar, 14,500 ft., 9.v.1924, and 9.vii.1924 ; Tashidozom, 14,500 ft., 29.v.1924 ; Tingri, 15,000 ft., 6.vii.1924 ; Chibbing, 14,500 ft., 13.vii.1924 (all *R. W. G. Hingston*).

The examples mentioned above come from high altitudes ranging between 14,000 ft. and 15,000 ft. As stated earlier (Kapur, 1957), the variation in the elytral patterns of these examples is remarkable, some 28 varieties being easily distinguishable in a collection of 40 specimens. The pronotum, though not quite so variable in its colour-pattern, is nevertheless generally dark, like the elytra, in the majority of examples.

All the above-mentioned examples from Tibet are smaller in size (length 3.2–4.2 mm., breadth 2.0–2.5 mm.) than those from the lower altitudes in India, and from Europe or Africa. Both in respect of the colour-pattern and size these examples are different from the subspecies *doubledayi* Mulsant (length 4.6–5.2 mm., breadth 2.8–3.0 mm.), so commonly found in the lower altitudes in the Himalaya.

### Tribe Coccinellini

#### *Adalia tetraspilota* (Hope)

*Coccinella tetraspilota* Hope, in Gray, 1831 : 31 [Type loc., Nepal].

*Adalia tetraspilota* (Hope) Crotch, 1874 : 101.

*Adalia tetraspilota* (Hope) ; Korschefsky, 1932 : 434.

*Adalia tetraspilota* (Hope) ; Mader, 1929 : 114, pl. 23, fig. 7.

Material. 1 ♂, SIKKIM, Rongli Chu, 3,000 ft., 29.iii.1924 (*R. W. G. Hingston*).

Though first described from Nepal the species has since been recorded from Bokhara, West Turkestan (*vide* Korschefsky, 1932 : 434), Afghanistan, etc. I have collected it from Baluchistan (West Pakistan) and Kashmir (India). The above example possesses two very small additional black spots on each elytron ; one of these is situated midway between the elytral base and the discal spot while the other is at the external margin and almost level with the sutural and discal spots. The male genitalia of this example are identical with that of the example with the typical elytral pattern. Several varieties with additional or reduced number of elytral spots have been named in literature (*vide*, Mader, 1929 : 114).

#### *Lioadalia luteopicta* (Mulsant)

*Adalia luteopicta* Mulsant, 1866 : 45 [Type loc., E. Indies].

*Lioadalia luteopicta* (Mulsant) Crotch, 1874 : 104.

*Lioadalia luteopicta* (Mulsant) ; Mader, 1930 : 134, pl. 28, fig. 29.

*Adalia luteopicta* Mulsant ; Korschefsky, 1932 : 433.

*Adalia luteopicta* Mulsant ; Kapur, 1958 : 326–327, fig. 6, e, f.

Material. 6 ex., TIBET, Tangu, 11,500 ft., 26.iv.1924 ; Tasam, Rongshar Valley, 12,000 ft., 20.vi.1924 ; Rongshar Valley, 13,000 ft., 1.vii.1924 ; Chambhi Valley, 11,000 ft., 22.vii.1924 ; Yatung, 11,000 ft., 25.vii.1924 (2 ex.) (all *R. W. G. Hingston*).

Korschefsky (1932 : 433) gave its distribution as North and East India and China. I have recorded it from Nepal, Sikkim and Dehra Dun (Kapur, 1958 : 326-7) and have seen examples from several other parts of north India.

The generic name *Lioadalia* was proposed by Crotch to include the above and three other species ; two of the latter were from Africa and one from South America. He distinguished *Lioadalia* from *Adalia* " by the extremely fine, obsolete punctuation ". Mader (1930 : 134) has further defined the genus and after seeing long series of the species, I support both Crotch and Mader in regarding it as distinct from other species of *Adalia* Mulsant. It is not certain how far our species is congeneric with *L. flavomaculata* (de Geer) the type species of the genus from S. Africa, but until further studies, it seems desirable to include the material under report in the genus *Lioadalia* Crotch.

### *Synharmonia billieti* (Mulsant)

*Harmonia billieti* Mulsant, 1853 : 144 [Type loc., North-East India].

*Synharmonia billieti* (Mulsant) Mader, 1931 : 191, pl. 40, figs. 1, 2.

*Coccinella billieti* (Mulsant) Korschefsky, 1932 : 447.

*Coccinella* (*Synharmonia*) *billieti* (Mulsant) ; Kapur, 1958 : 327, text-fig. 9, a-j.

Material. 1 ♀, TIBET, Rongshar Valley, 9,500 ft., 25.vi.1924 (*R. W. G. Hingston*).

The above-mentioned example belongs to the variety *testacea* (Kapur, 1958 : 327) but differs slightly from the typical pattern of the variety in that lateral parts of the pronotum are entirely light testaceous. The species is very variable in coloration and is widely distributed in the Himalaya. It seems advisable to regard *Synharmonia* Ganglbauer, 1899, as a distinct genus and to treat *billieti* as one of its species on the basis of its external body and genitalic characters.

### *Synharmonia signatella* (Mulsant)

*Harmonia signatella* Mulsant, 1866 : 58 [Type loc., N. India].

*Coccinella signatella* (Mulsant) Crotch, 1874 : 110.

*Synharmonia signatella* (Mulsant) Mader, 1931 : 199, pl. 42, fig. 4.

*Coccinella* (*Synharmonia*) *signatella* (Mulsant) ; Korschefsky, 1932 : 494 [Himalaya].

Material. 1 ♂, INDIA, Darjeeling, 7,000 ft., 1-14.iv.1924 (*Miss Wetherall*), 1 ♀, SIKKIM, Tangu, 11,000 ft., 26.iv.1924 (*R. W. G. Hingston*).

Recorded earlier from the " Himalaya ", the exact locality being unknown. It is a beautiful species with seven black spots on the pronotum, an entirely black scutellum and spotless elytra. Two further examples from Darjeeling and one from Manipur are present in the Z.S.I. collection, and one example from Mishmi Hills, Burma, present in the B.M. (N.H.) collection that is on loan for study with me.

### *Coccinella magnopunctata* Rybakow

*Coccinella undecimpunctata magnopunctata* Rybakow, 1889 : 289 [Type loc., Central Asia].

*Coccinella magnopunctata* Rybakow ; Dobzhansky, 1926 : 22, fig. 3 (♂ genitalia).

*Coccinella magnopunctata* Rybakow ; Korschefsky, 1932 : 469.

Material. 1 ex., TIBET, Tibetan plateau, 14,000 ft., —.iv.1924 ; 4 exs., Shekhar, 14,500 ft., 8.vii.1924 (*R. W. G. Hingston* coll.).

This species resembles the eleven-spotted lady-beetle, but is easily recognisable by the shape of the flavous area near the anterior angles of pronotum and by the large elytral spots. The male genitalia agree with those illustrated by Dobzhansky (1926 : 22). The species is already recorded from Tibet as well as Kashmir (*vide*, Korschefsky, 1932 : 469).

***Coccinella tibetina* sp. n.**

(Text-figs. 13A-D)

♂, ♀. Body subovate, moderately convex (Text-fig. 13, A), more or less like *Coccinella magnopunctata* Rybakow in outline. Head black, except for the greyish eyes and a pair of pale-testaceous, oval to roundish spots on the frons, each spot being near the inner margin of the eye ; pronotum black with a pale-testaceous, subquadrate spot at each anterior angle, the spot widely emarginate posteriorly ; scutellum black, elytra testaceous, each with four black spots as follows : the scutellar spot about 1 mm. long, 0.7 mm. wide, nearly semicircular, with the base lying along the suture, forming a complete, subrounded spot with its opposite number on the other elytron ; the subhumeral spot situated just below the humeral callus and close to, though not touching, the lateral margin, almost circular in outline, the diameter being nearly 0.6 mm. ; the discal spot transverse, 0.6-0.7 mm. long, 1-1.2 mm. broad, situated below the level of the apex of the postscutellar spot, and nearer the sutural than the lateral margin ; the subapical spot also transverse, much larger, 0.7 mm. long and 1.5 mm. broad, appearing as if it were composed of two confluent spots. Underside black except for a small, pale brown part of the pronotal epipleura and the testaceous elytral epipleura.

*Head* with moderately fine, close and rather shallowly impressed punctation and a few greyish hairs on the clypeus. *Pronotum* with the punctation very fine, impressed and closer than is the case on the head ; anterior angles and lateral margins impressed. *Scutellum* small with eight to ten fine and impressed punctures. *Elytra* slightly longer than the breadth of the two together, broadest behind the middle, moderately convex, the anterior angles broadly and the lateral margins moderately rounded, both narrowly bordered except near the apices of the latter, punctation fine, impressed and nearly as close as that on the pronotum. *Underside* with the prosternal carinae short and weak ; the outer fork of the abdominal line also weak or missing. *Male genitalia* (Text-fig. 13, B) with the basal piece subquadrate, nearly as long as broad, rounded anterolaterally, broadly emarginate in the middle ; median lobe nearly twice as long as the basal piece, gradually narrowed and for the most part conical, with a rounded apex ; parameres nearly two-thirds the length of the median lobe, uniformly narrow and straight at the sides with rounded apex, and a number of moderately long setae in the apical half ; siphon (Text-fig. 13, C) with the siphonal capsule much developed, bent almost double in the proximal half of its length, expanded twice (proximally more widely so than subapically), before the pointed apex. *Female genitalia* characterized by the cornu (*c*) of the spermatheca (Text-fig. 13, D) being uniformly narrow and straight except for a slight bend at the distal one-fourth of its length, the ramus (*r*) short, a little narrower than cornu, the nodulus (*n*) also short and narrow, infundibulum (*i*) much narrower for the proximal two-thirds of its length, accessory plate absent.

Length 5.4-5.8 mm. ; breadth 4.2-4.4 mm.

Holotype. ♂, TIBET, Phari, 14,000 ft., 21.vii.1924 (*R. W. G. Hingston*) ; in the British Museum (N.H.), London. (Genitalia mounted between two coverslips and attached to the same pin as the specimen.)

Allotype. ♀, TIBET, Zayul, Chutong (S.E. Tibet), 13,000 ft., 22.vi.1933 (*Kingdon Ward* and *R. J. H. Kaulback*), in the British Museum (N.H.). (Genitalia mounted as above.)



Paratypes. 3 ex.: 1 ♀ with the same data as the allotype in the Z.S.I. collection, Calcutta ; 2 ♂, from TIBET, Zayul, Atakang, 13,000 ft., 9.vi.1933 and 1.vii.1933 (*Kingdon Ward* and *R. J. H. Kaulback*), one each in B.M. (N.H.) and Z.S.I. collection.

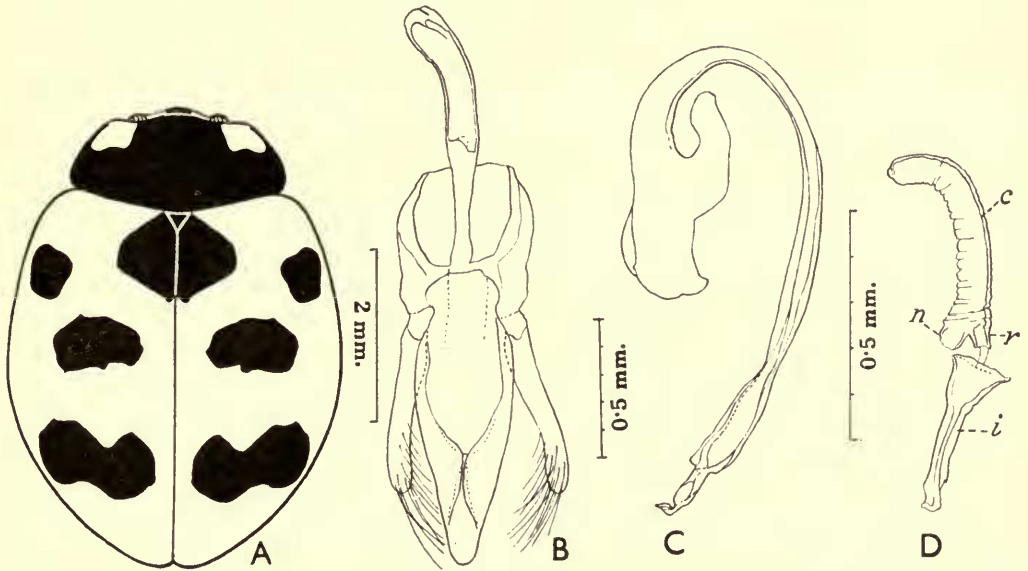


FIG. 13. *Coccinella tibetina*, sp. n. A, outline showing the pattern. B, male genitalia without the siphus. C, the siphus. D, spermatheca.

In the five examples before me the colour-pattern is strikingly alike. The species comes close to *Coccinella nivicola* Ménètries (from Eastern Siberia) in general shape and structure but is easily distinguishable from it by the presence of an anterolateral or sub-humeral spot situated below the humeral callus, and by the relatively large size of the scutellar and the subapical spots ; the mesepimera and metepimera are black in all the five examples. The male genitalia resemble, on the whole, those of *C. nivicola* but are distinguishable by the slightly narrower outline of the median lobe. The female genitalia are relatively more distinctive in the two species, the cornu of the spermatheca in *C. tibetina* is neither distinctly narrowed towards the apex nor deeply curved in the middle, as is the case in *C. nivicola*.

### *Coccinella lama* sp. n.

(Text-figs. 14A–D)

♂, ♀. Body subovate (Text-fig. 14, A), moderately convex, in shape rather like *Coccinella magnopunctata* Rybakow, though slightly narrower anteriorly and smaller in size. Head black, with a white spot on each side near the inner margin of the eye ; pronotum black, with a white, sub-quadrate mark at each anterior angle, the mark widely emarginate posteriorly ; scutellum black ; elytra testaceous, each with four<sup>1</sup> spots ( $\frac{1}{2}$ , 1, 1, 1) as follows : a moderately

<sup>1</sup> These would correspond to spots No. 2, 3 and 4 of Dobzhansky (1931, *Proc. U.S. nat. Mus.* 80 (4), p. 27, f. 30), the spots 1 and 5 of the hypothetical basic pattern of the genus being absent in this species.

large, pear-shaped scutellar spot ( $\frac{1}{2}$ ); a small, roundish, black spot, situated at about one-third the length of the elytron and nearer the lateral than the sutural margin and not touching the former; a discal spot, larger than the preceding spot, usually roundish, situated on the disc of the elytron, at about the same distance from the suture as its own width; the last, or the subapical marginal spot, usually transverse oval and slightly larger than the discal spot, situated at about two-thirds the length of the elytron and close to the external margin but not touching the same. A whitish, semicircular to subtriangular mark also present at the base of the elytron close to the scutellum. Underside black except for the narrow and generally small, whitish area at the anterior angles of the prothoracic epipleura, the testaceous elytral epipleura, the white mesepimera and metepimera, and in the male a whitish spot on the anterior coxae.

*Head* with rather fine, close and impressed punctures. *Pronotum* with similar or a little finer punctation, with the lateral margins impressed. *Scutellum* small, with six to eight small and shallow punctures. *Elytra* moderately convex, the shoulder angle broadly rounded anteriorly, the lateral margin narrowly bordered from the shoulder angle to nearly three fourths the length of the elytron, punctation fine, impressed and nearly as close as that on the pronotum. *Underside* with the prosternal carinae subparallel and hardly reaching beyond the level of the anterior coxae, the abdominal line on the first abdominal segment crossed by an oblique line. *Male genitalia* (Text-fig. 14, B) with the median lobe broadly pear-shaped in the basal half, drawn out into a narrow elongate process in the distal half, parameres shorter than the median lobe, nearly uniformly wide, rounded at the apex, with a number of short to moderately long hairs along the margin in the distal half; siphon arched proximally, siphonal capsule well developed, lying almost parallel to the remainder of the siphon which is nearly straight and narrowed distally, with the lateral margins a little below the apex narrowly expanded (Text-fig. 14, C). *Female genitalia* (Text-fig. 14, D) with the spermatheca having the cornu narrowed towards the apex, with a short ramus (*r*) and with the infundibulum (*i*) dilated a little at both ends, accessory plate present.

Length 4.4-4.5 mm.; width 3.1-3.2 mm.

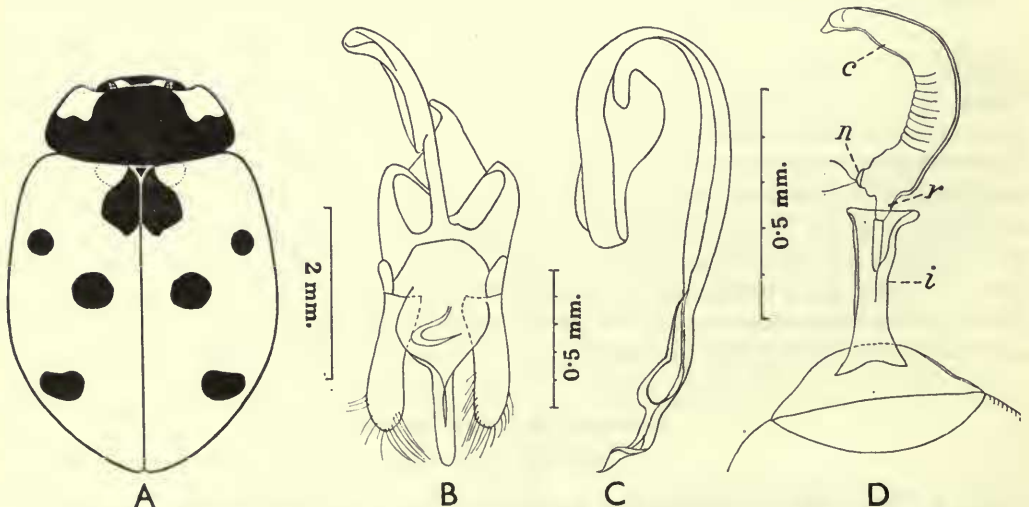


FIG. 14. *Coccinella lama*, sp. n. A, outline showing the pattern. B, male genitalia without the siphon. C, the siphon. D, spermatheca.

Holotype. ♂, TIBET, Shekhar, 14,500 ft., 8.vii.1924 (R. W. G. Hingston), in the British Museum (N.H.), London. (Genitalia mounted between two coverslips and attached to the same pin as the specimen.)

Allotype. ♀, with the same data as the holotype, in the British Museum (N.H.), London. (Genitalia also mounted between two cover-slips as above.)

Paratypes. 9 ♂, ♀, with the same data as the holotype ; 1 ex., TIBET, Tingri, 15,000 ft., 6.vii.1924 (R. W. G. Hingston), 1 ex., TIBET, Kyishong, 14,500 ft., 10.vii.1924 (R. W. G. Hingston). (4 paratypes from Shekhar in the Z.S.I. collection, Calcutta, and the rest in the B.M.)

*Coccinella lama* can easily be distinguished from *Coccinella magnopunctata* Rybakow by the colour-pattern of the pronotum and the reduced number of elytral black spots, there being eleven such spots on the elytra in the latter and seven in the former ; besides, the size of the spots in *C. magnopunctata* is large, and the genitalia (♂, ♀) very distinctive for the species. *C. lama* is easily distinguishable by its smaller size from most examples of *Coccinella septempunctata* Linnaeus which it resembles in general coloration. The latter is a very variable species both in respect of its size and pattern : some of its smaller examples may therefore superficially resemble *C. lama*. The latter may, however, be recognized by the larger, pear-shaped scutellar spot, the white metepimera (which in *C. septempunctata* are usually brown and rarely white) and the white mark on the first coxae in the male. The male genitalia in the two species are very distinct ; the basal piece and the median lobe are subconical in *C. septempunctata*, while the basal piece is broad and the median lobe very much narrowed and finger-like in the distal half in *C. lama*. In respect of the female genitalia, *C. lama* is easily distinguishable by the shorter ramus and nodulus of spermatheca. The species is a denizen of high altitudes and apparently belongs to the *C. septempunctata* group of species in the genus.

### *Coccinella nigrovittata* sp. n.

(Text-figs. 15A-F)

♂, ♀. Body oval, maximum width just behind the middle of the body length, moderately convex (Text-fig. 15, A). Head black except for the two pale testaceous or whitish, ill-defined, spots on the frons (one each near the inner margin of the eye), the whitish subcanthus, and the brown to piceous antennae and mouth-parts. Pronotum black, except the pale testaceous narrow border along the anterior margin, the slightly wider triangular area at anterior angles and a narrow border along the lateral margin. Scutellum black. Elytra testaceous, each with a black, shortly elongate spot on the suture immediately behind the scutellum and extending to about one-sixth the length of the elytron ; one long, black stripe or vitta present, commencing from the humeral callus and extending, slightly obliquely, to the five-sixths the length of elytron and being usually as wide as one-fourth to one-third the width of elytron. Underside black except the whitish anterior half of the prothoracic epipleura and the mesepimera and the testaceous elytral epipleura.

*Head* with the frons having fairly impressed, fine, rather sparse punctures and a few short dark hairs ; antennae a little shorter than the width of the head, with a rather well-defined club composed of the three terminal segments. *Pronotum* nearly twice as wide as long, moderately emarginate at the anterior margin, the anterior angles rather acute and the posterior obtuse ; the lateral margins moderately rounded ; punctation impressed, coarser and closer than that on the head. *Scutellum* triangular, having a few very fine punctures. *Elytra* oblong (7 : 9), moderately convex, with humeral calli indistinct, the shoulder-angles wide, the lateral margin, moderately curved, especially in the basal half of their length ; punctation similar to or slightly coarser than that on the pronotum but sparser and rather less impressed.

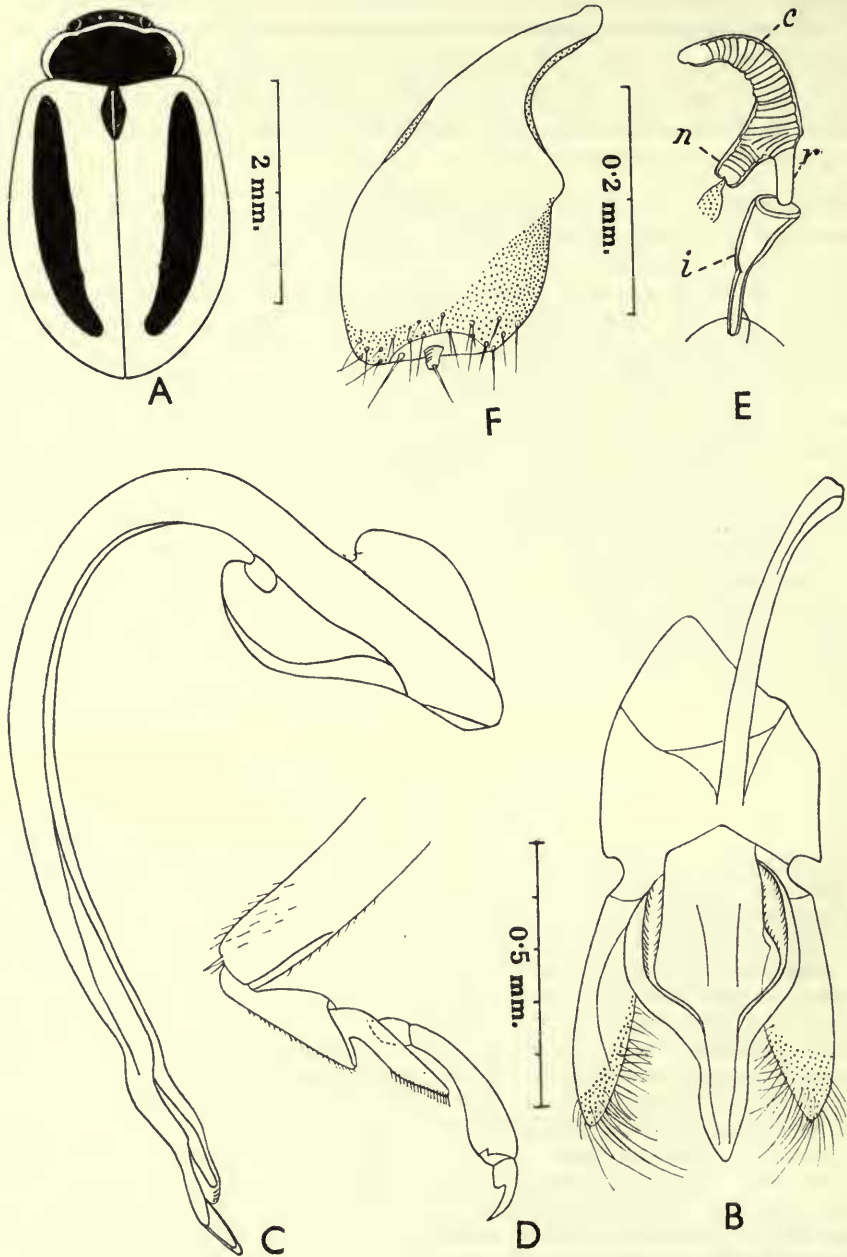


FIG. 15. *Coccinella nigrovittata*, sp. n. A, outline showing the pattern. B, male genitalia except the siphon. C, the siphon. D, tarsi and a tarsal claw. E, spermatheca. F, a genital plate of the female. (2 mm. scale for fig. A ; 0.5 mm. scale for figs. B-D, F ; 0.2 mm. scale for fig. E.)



*Underside* with the prosternal carinae sub-parallel and extending as far as the middle of the length of prosternum and hardly beyond the level of the front coxal cavities ; the mesosternum straight at the base ; abdominal lines incomplete, cut across obliquely by a line as in most other species of *Coccinella* ; the last abdominal sternite in the male widely emarginate at the apex, rounded in the female. *Male genitalia* (Text-fig. 15, B) with the median lobe only slightly narrower than the basal piece in the proximal half and suddenly narrowed in the distal half to an almost acute point at the apex ; parameres a little shorter than the median lobe, blade-like and beset with a number of short setae in the distal half ; siphon (Text-fig. 15, C) with an enlarged siphonal capsule, almost curved at a right angle at a little distance before the siphonal capsule and gradually narrowed towards the apex. *Female genitalia* with the genital plate (ix sternite) pear-shaped with a distinct papilla in the middle (Text-fig. 15, F) ; spermatheca (Text-fig. 15, E) with the cornu (*c*) moderately bent in the middle, slightly narrowed distally, the ramus (*r*) well developed and wide, the nodulus (*n*) elongate, and the infundibulum (*i*) funnel-shaped, the accessory plate absent.

Length 3.2 mm.; width 2.1 mm.

Holotype. ♂, TIBET, Kampa Dzong, 14,500 ft., 29.iv.1924 (*R. W. G. Hingston*) in the British Museum (N.H.), London. (Genitalia and abdominal sternites mounted between two coverslips and on the same pin as the specimen.)

Allotype. ♀ with the same data as the holotype, in the British Museum (N.H.). Damaged and with the left elytron missing. (Genitalia and abdominal sternites mounted between two coverslips and on the same pin as the specimen.)

On account of the somewhat elongate shape of the body and the coloration of pronotum and elytra, this species appears to be an aberrant one in the genus. The antennae and mouth-parts, the prosternal carinae, shape of the mesosternum and of the abdominal lines, the structure of the legs and claws and the male and female genitalia are as in typical members of the genus. It may be compared in size and general shape with *Synharmonia billieti* (Mulsant), which comes from various neighbouring parts in the Himalayas, but does not belong to the *Synharmonia* as the front of the median part of the mesosternum is not excised ; it also differs from other species of *Synharmonia* in the structure of the male and female genitalia. In respect of its female genital structure it comes relatively closer to *Coccinella hieroglyphica* Linn., the spermatheca and infundibulum being very much similar in general outline, the same is true of certain parts of the male genitalia such as the siphon, but the median lobe and the parameres are very distinct in the two species. Moreover, *C. hieroglyphica* is a larger species, being 3.7–4.3 mm. long, more rounded and convex, and has different coloration of the pronotum and elytra.

### *Calvia sykesi* (Crotch)

*Anisocalvia sykesi* Crotch, 1874 : 146 [Type loc., "Dukhun (India Mus.)"].

*Calvia (Anisocalvia) sykesi* (Crotch) Korschefsky, 1932 : 529 [Distribution, "Dekkan"].

Material. 2 exs., INDIA, Darjeeling, 7,000 ft., 25–31.iii.1924 (*Miss Wetherall*) ; 1 ex., same locality, 1–14.vi.1924 (*Miss Wetherall*).

It has not been possible to locate in India the place "Dukhun" as mentioned by Crotch. Korschefsky changed it to "Dekkan" (meaning Deccan!) for reasons best known to him. It is apparently for the first time that the species is being recorded from a better known locality in India. In addition, I have also collected

this species from Shillong (Assam) from cabbage fields. It is worth recording here that the beetle is light green in colour when alive and that the colour gradually changes to light brown after death. As the subgenus *Anisocalvia* Crotch is rather ill-defined, it is better to place this species in the genus *Calvia* Mulsant.

***Calvia shiva* sp. n.**

(Text-fig. 16A)

♂. Body shortly oval, moderately convex (Text-fig. 16, A). Head straw-yellow except the testaceous median part of clypeus, antennae and the dark grey eyes. Pronotum for the most part black to piceous except for the broad, lateral, testaceous area on either side and the relatively narrower, testaceous to translucent border (extended in the middle towards the disc) along the anterior margin; in the middle of each testaceous area is a straw-yellow, suboval spot. Scutellum black. Elytra black except for the moderately wide testaceous external border and the six roundish, straw-yellow spots on each elytron, and, rather commonly, with a testaceous, roundish spot near the apex, arranged as 2, 2, 2,  $\frac{1}{2}$ . The basal spot near the scutellum rounded, large (0.6 mm. diameter), touching the basal margin but not the suture; the humeral spot, also rounded, a little smaller, situated on the external half of the humeral callus but neither touching the base nor the external testaceous border; the next pair of spots are located on the transverse median line, each rounded and subequal, and not touching the sutural margin or the external border; the further two spots situated at three-fourths the length of the elytron, rounded, of practically the same size as the preceding pair, the inner spot not touching the suture, the outer touching the testaceous border; the apical, testaceous spot semicircular, situated on the suture and abutting on the external border. Underside testaceous, except for the metasternum and the median parts of the first four abdominal sternites.

*Head* sparsely and shallowly punctate on the front; clypeus moderately emarginating the eyes, antennae fairly long and slender, 11-segmented, reaching the mesosternum. *Pronotum* transverse, (1 mm. long, 2.2 mm. broad), very coriaceous, with moderately sparse, fine and fairly impressed punctures. *Scutellum* triangular, the base longer than the sides, with about eight fine and shallow punctures. *Elytra* as long as the breadth of the two together, the external margin narrowly expanded and moderately sloping except near the apex; shoulder-swelling distinct, punctation impressed, moderately coarse punctures intermixed with the fewer, relatively less coarse, punctures except near external margin where punctures are mostly coarse, the apical angles narrowly rounded. *Underside* with the prosternum rounded to somewhat pointed at the apex, with the pair of carinae slightly converging and extending as far as two-thirds the length of prosternum; mesosternum emarginate in the middle of the anterior margin to accommodate the apex of prosternum; metasternum with an impressed, longitudinal stria in the middle extending from the basal to the anterior margin, with a number of short, shallow and transverse striations and a few small and fine punctures over the surface; abdominal lines incomplete. *Male genitalia* with the basal piece slightly broader than long; the median lobe elongate, triangular, with the apical one-sixth moderately curved towards the parameres; the siphon curved in almost a semicircle in the basal half and only slightly curved and gradually narrowed distally, the outer arm of the siphonal capsule narrow and nearly twice as long as the inner one, the apical part of the siphon characteristically wedge-shaped.

♀. Unknown.

Length 4.4 mm.; breadth 3.6 mm.

Holotype. ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (Genitalia mounted between two coverslips and attached to the same pin as the specimen.)

Paratype. ♂, INDIA, N.E.F.A., 3 miles N.W. of Phudang, on footpath to Bhutan, 28.ix.1961 (*S. Biswas*) in Z.S.I. collection. (Genitalia mounted as above.)

This and the succeeding four species form a closely related assemblage which is apparently close to the group of species called *Calvia vishnu* (Crotch), *Calvia krishna* (Crotch), and *Calvia buddha* (Crotch), all from N. India and described by Crotch (1874) under the genus *Anisocalvia* Crotch which, as stated earlier, is ill-defined and not clearly distinguishable from *Calvia* Mulsant (1850). In respect of colour pattern *C. shiva* is very distinctive on account of the presence of six straw-yellow spots on a black elytron, as described above. However, it somewhat resembles *C. punctata* (Muls.), also from northern India, in that the elytral punctation is rather coarse, unequal and impressed, but on actual comparison of the examples of the two species, it becomes obvious that punctation in *C. punctata* is distinctly coarser and more unequal than is the case in *C. shiva*.

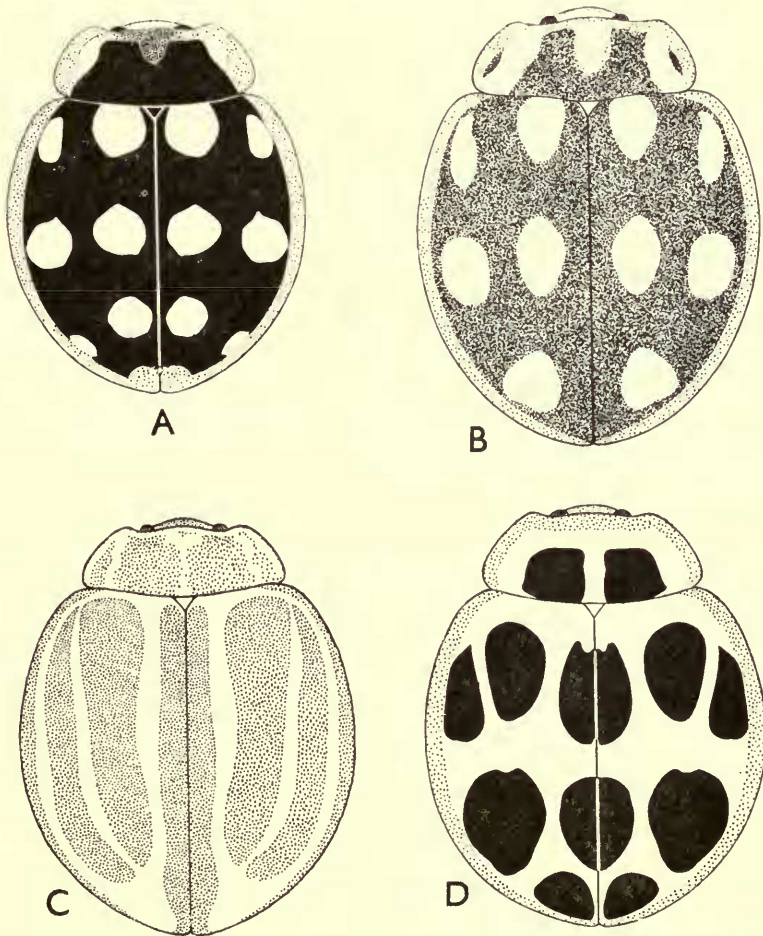


FIG. 16. Outlines showing the patterns : A, *Calvia shiva*, sp. n. B, *Calvia durgae*, sp. n. C, *Calvia trilochana*, sp. n. D, *Calvia pasupati*, sp. n.



***Calvia durgae* sp. n.**  
(Text-figs. 16B, 17H-I)

♀. Body shortly oval, a little more elongate and larger than *C. shiva*, moderately convex (Text-fig. 16, B). Head yellowish-testaceous in the front, eyes grey, mouth-parts and antennae testaceous. Pronotum with a broad, rather M-shaped, orange-testaceous spot in the middle, with three additional straw-yellow spots, the central one of which is oval and smaller than the other two which are rather elongate and touching the basal and anterior margins but not the lateral margins; the external margins somewhat translucent. Scutellum straw-yellow. Elytra orange-testaceous except for the testaceous and somewhat translucent external borders and the five, roundish to shortly oval, straw-yellow testaceous spots on each elytron arranged as 2, 2, 1. The spot near the scutellum quite large, situated on the basal margin, more near the scutellar angle than near the humeral angle and extending as far as about one-fifth the length of the elytron; the shoulder-spot smaller, roundish and situated on the external half of the humeral callus and extending a little below the level of the extremity of the sutural spot, not touching the external margin. The next two spots are situated on the transverse median line, rounded, slightly smaller than the spot near the scutellum, the inner one as near the suture as the latter, the outer spot equidistant from the inner spot and the external margin; the fifth or subapical spot a little larger than the others, situated at four-fifths the length of the elytron, nearly equidistant from the lateral and the sutural margins. Underside testaceous except for the black metasternum.

*Head* similar to the *C. shiva* except that the antennae appear to be a little longer. *Pronotum* also similar but with the punctation slightly closer and a little less impressed. *Scutellum* similar. *Elytra* also similar except for the punctation which is for the most part uniform, moderately coarse and impressed; only slightly coarser near the external border. *Underside* also similar except that the metasternum has a less impressed median longitudinal stria which becomes faint and indistinct in the distal half, the short transverse striae not clearly visible, the coarse, sparse and impressed punctures present in the anterior median area and the fine and sparse, moderately impressed punctures in the lateral area. *Female genitalia* with the genital plates (ix sternite) pear-shaped, nearly 0.5 mm. long, 0.25 mm. broad, much narrowed in the proximal half, rounded and broadened distally (Text-fig. 17, H), spermatheca (Text-fig. 17, I) curved into approximately three quarters of a circle, slightly expanded distally, with the apex rounded, the ramus short and truncate.

♂. Unknown.

Length 5.0 mm.; breadth 4.00 mm.

Holotype. ♀, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (Female genitalia mounted between two coverslips and on the same pin as the specimen.)

This species is slightly larger and more elongate than *C. shiva* described earlier; it is also different from it in coloration and punctation as described above. On account of the general coloration, *i.e.*, the orange-testaceous elytra and the straw-yellow elytral spots, this species bears a superficial resemblance to *C. krishna* (Crotch), but the latter has on each elytron six spots which are narrowly margined with dark brown and are differently placed.

***Calvia trilošana* sp. n.**  
(Text-figs. 16C, 17J)

♂, ♀. Body shortly oval, a little more rounded than *C. durgae*, moderately convex (Text-fig. 16, C). Head testaceous, with a pair of small, ill-defined, opaque yellowish-testaceous marks on the frons, close to the eyes, and a similarly coloured line on the anterior margin of



the clypeus ; the eyes are light grey, antennae and mouth-parts light testaceous. Pronotum testaceous, with three, rather ill-defined, longitudinal, straw-yellow vittae ; one in the centre of the other two, one each on either side, close to the lateral margin ; the external border rather translucent. Scutellum straw yellow. Elytra testaceous, each with three, straw-yellow, rather narrow vittae of uneven breadth, joined along the base and at the external apical area of the elytron, the first vitta parallel to the sutural margin and at about 0.3 mm. from it, the second at about two thirds the width of the elytron, passing by the outer side of the humeral callus and then for the most part of its length subparallel to the first vitta with which it joins in the subapical area ; the third vitta, which is very narrow, commences from the basal margin and runs parallel to the external margin before joining the other two near the apex of the elytron ; the external margins of elytra a little translucent. Underside light testaceous except for the black mesosternum and median parts of first three abdominal sternites.

*Head, pronotum and scutellum* similar to *C. durgae* in the general outline and punctuation. *Elytra* with the punctuation uniform, but slightly coarser than in *C. durgae* and finer than in *C. shiva* or *C. punctata*. *Underside* with the pair of prosternal carinae rounded proximally and subparallel distally, not reaching the anterior margin ; prosternum and mesosternum very finely and sparsely punctate ; metathorax with the median longitudinal carina deep and present throughout the length, the punctuation fine, impressed and sparse throughout. *Male genitalia* similar to those of *C. shiva* but with the median lobe broader and moderately humped before the subapical bend towards the parameres ; viewed from the front the median lobe is slightly constricted near the base, gradually expanded in the middle and narrowed to a conical apex ; apex of the siphon also distinct in outline and the character of chitinisation. *Female genitalia* with the genital plates (ix sternite) pear-shaped, relatively broader than those in *C. durgae* being two-thirds as broad as long (Text-fig. 17, J) ; spermatheca more or less similar in outline to that of *C. durgae* but slightly thicker.

Length 4.5 mm. ; breadth 3.75 mm.

*Holotype*. ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (Head, with the mouth-parts and antennae dissected and the abdomen with the male genitalia dissected and mounted between coverslips and attached to the pin bearing the specimen.)

*Allotype*. ♀, with the same data as the holotype ; in the Z.S.I. collection, Calcutta. (Female genitalia dissected and mounted between two coverslips and on the same pin as the specimen.)

This species may be compared with *Calvia albolineata* Schoenherr, described from China, on account of the general coloration ; *C. albolineata* besides being larger (5.1 mm. long and 4.5 mm. broad) and subhemispherical, has on each elytron four yellowish, sub-parallel lines, the two inner ones of which are united at their base and at two-thirds of their length ; the other two lines are independent, and differ in position from those of *C. trilochana* which, as described earlier, has only three lines, all of which join at the base and in the subapical area.

### *Calvia pinaki* sp. n.

(Text-figs. 17A-G)

♂, ♀. Body shortly oval (Text-fig. 17, A), moderately convex, with the declivity of the shoulder-swelling towards the lateral margin quite pronounced. Head brown, bordering on reddish-testaceous, except for the grey eyes and the reddish-testaceous apices of mandibles. Pronotum also brown, with a pair of subrounded, black spots near the base and a little distance away from either side of the scutellum which is testaceous. Elytra brown, altogether with

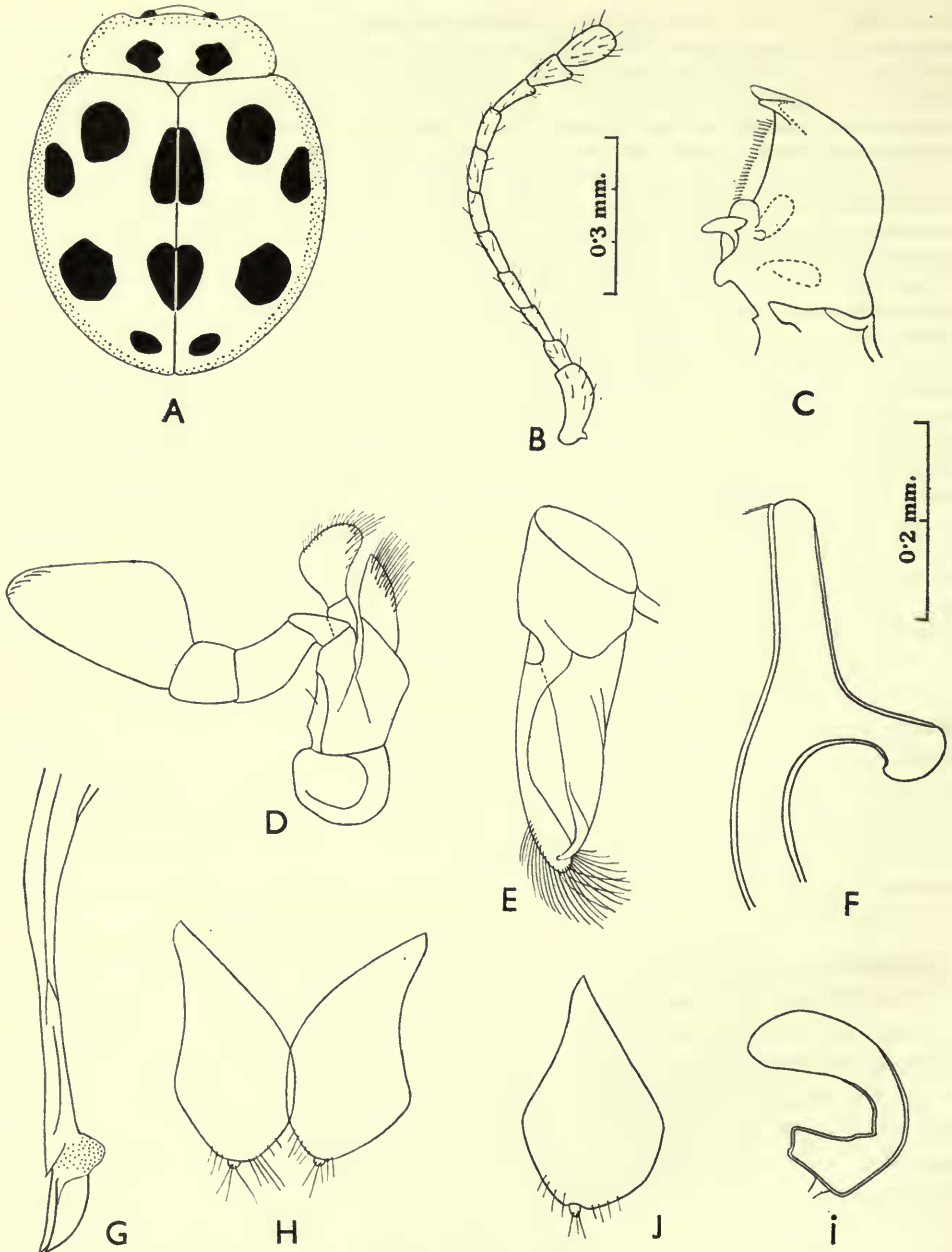


FIG. 17. A, outline showing pattern of *Calvia pinaki*, sp. n. B, C, D, antenna, mandible and maxilla respectively, of the same. E, male genitalia without the siphon of the same, lateral view. F, G, siphonal capsule and apex of the siphon of the same. H, I, female genital plates and spermatheca respectively of *Calvia durgae*, sp. n. J, female genital plate of *Calvia trilochana*, sp. n. (0.3 mm. scale for figs. B-D; 0.2 mm. scale for figs. E-H and J).

ten black spots of which two, situated at one-third and two-thirds along the suture, are common to both the elytra and are nearly oval in outline ; the other spots on each elytron are as follows : the subhumeral spot subrounded, small to moderately larger, situated in the middle of the elytron just below the level of the humeral callus ; the next spot, similar or slightly smaller, situated near the external margin at about one-third the length of elytra or at level with the first sutural spot ; the postmedian spot also subrounded situated in line with the post-humeral spot and level with the second common or sutural spot, nearly as large or a little larger than the latter ; the subapical spot smallest, rounded, and situated in the apical angle equidistant from the sutural and external margins ; the external border of elytra slightly translucent. Underside testaceous except for the black metathorax and the median parts of the first three abdominal sternites.

*Head* finely and sparsely punctate. *Pronotum* rather sparsely, finely and shallowly impressed, less so than that in *C. shiva*. *Scutellum* nearly impunctate, with only a few, very fine punctures. *Elytra* with moderately fine, fairly close, impressed and uniform punctation, less coarse than that in *C. shiva* or *C. pasupati* (see infra). *Underside* with the prosternal carinae subparallel, not reaching the anterior margin, both pro- and mesosterna finely and sparsely punctate ; the metasternum with a longitudinal stria extending from the anterior to the basal margin, the punctation fine, moderately impressed and generally sparse, the median part with a few short and shallowly impressed striae. *Male genitalia* (Text-fig. 17, E) similar to those of *C. shiva* except that the basal piece is longer than wide and that the median lobe appears to be narrow when seen in profile ; the apex of the siphon also differs in outline and in the pattern of chitinisation (Text-fig. 17, G). *Female genitalia* with the genital plates more or less like those of *C. durgae* but with the distal half of the inner margin of the two plates subparallel rather than rounded ; spermatheca rather similar to that of the latter species.

Length 4.5 mm.; breadth 3.7 mm.

Holotype. ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (The head with the mouth-parts dissected and the male genitalia mounted between two coverslips and on the same pin as the specimen.)

Allotype. ♀, with the same data as the holotype ; in the Z.S.I. collection. (The female genitalia mounted as above.)

The most distinctive feature in the coloration of this species is that the background colour of the head, pronotum and elytra is testaceous to reddish-testaceous and that there are black pronotal and elytral spots. The differences between this and the preceding species in respect of punctation and genitalia have already been referred to earlier. The antennae and mouth-parts which are typical of the Coccinellini are shown in Text-fig. 17, B-D.

### *Calvia pasupati* sp. n.

(Text-fig. 16D)

♂. Body similar in shape and outline to *C. pinaki*, except that the declivity of the humeral callus is slightly more pronounced. Head straw-yellow except the grey eyes, the testaceous antennae and reddish-testaceous apices of the mandibles. Pronotum (Text-fig. 16, D) for the most part straw-yellow except for a pair of rather large, quadrate, black spots on the base, each at a little distance away from and on either side of the longitudinal median line ; a narrow border along the anterior angles and the lateral margins rather light testaceous and somewhat translucent. Scutellum straw-yellow. Elytra also with the ground colour straw-yellow except a narrow, translucent, testaceous border along the external margins and with twelve black spots arranged more or less as in the preceding species, but differing in shape and size, being much larger than those in *C. pinaki*.

*Head* with very fine, sparse and shallow punctation. *Pronotum* similar to that in *C. pinaki* in outline but with the punctation fine, moderately sparse and fairly impressed, almost as that in *C. shiva*. *Scutellum* with a couple of fine punctures. *Elytra* as long as the breadth of the two together, with the humeral callus prominent and with the declivity of the callus towards the lateral margin well pronounced for about one-fourth of the length of the margin; the external margin narrowly expanded along the border and slightly declivous; the punctation moderately coarse and impressed, distinctly more than in *C. pinaki* and more or less like *C. shiva* which has, however, a rather mixed type of punctation; in the present species, only a few punctures become coarser towards the lateral margin, otherwise, especially on the disc, they are uniform. *Underside* with the prosternal carinae subparallel and extending up to two-thirds of the length of prosternum, metasternum with a fairly well-impressed, median longitudinal stria and with coarse, sparse and impressed punctures except in the central median area where the punctures are much sparser, very fine and impressed and where the surface is also provided with a few short and shallowly impressed, transverse striae. *Male genitalia* like those in *C. pinaki* but with the median lobe slightly larger, more distinctly chitinized in the longitudinal median part and bent, with a scoop, at an angle of about one hundred degrees, towards the parameres which are comparatively more densely covered with hair than any of the preceding species; the apical part of siphon also differs, being strongly chitinized and bearing two pairs of elongate, rod-like structures at the apex.

♀. Unknown.

Length 4.75 mm.; breadth 4.0 mm.

*Holotype*. ♂, SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*), in the British Museum (N.H.), London. (The genitalia dissected and mounted between two coverslips on the same pin as the specimen.)

*Paratype*. ♂, with the same data as the holotype is in the Z.S.I. collection, Calcutta. This example is apparently immature, and teneral, the coloration being not fully developed because the pronotal and elytral spots are brownish.

Although this species resembles *C. pinaki* in the basic arrangement of the black spots of the elytra it can easily be distinguished from the latter in the detailed characters of the colour-pattern; the ground colour of the head, pronotum and elytra in this species is straw-yellow as against the brown colour in *C. pinaki*, and the black spots are much larger and different in outline. There are also differences between the two species in the degree of the declivity of the elytra in the area posterior and lateral to the humeral callus, in the punctation of the pronotum, elytra and metasternum, as well as in the shape and structure of the median lobe and siphon of the male genitalia.

### Tribe *Psylloborini*

#### *Halizia straminea* (Hope)

*Coccinella straminea* Hope, in Gray, 1831 : 31 [Type loc., Nepal].

*Halizia straminea* (Hope) Mulsant, 1850 : 165.

*Halizia straminea* (Hope); Weise, 1895c : 133.

*Material*. 2 ex., SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (*R. W. G. Hingston*).

Though originally described from Nepal this species was further recorded from Simla (Punjab) and Sikkim by Weise (1895). An example of it from Kurseong (N. Bengal) is present in the Z.S.I. collection, beside two others from Sikkim.



*Halysia sanscrita* Mulsant

*Halysia sanscrita* Mulsant, 1853 : 152 [Type loc., N. India].

Material. 1 ex., TIBET, Yatung, 10,000 ft., 23.vii.1924 (R. W. G. Hingston) ; 1 ex., SIKKIM, Singhik, 5,000 ft., 24.iv.1924 (R. W. G. Hingston).

The record of this species from Yatung, Tibet, is of great interest as the species has hitherto been known from various parts of northern India and Sikkim only. I have collected it in Delhi where the examples with confluent elytral spots, especially in the apical half of elytra, are quite common.

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